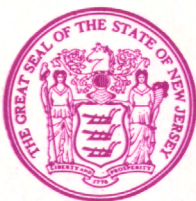
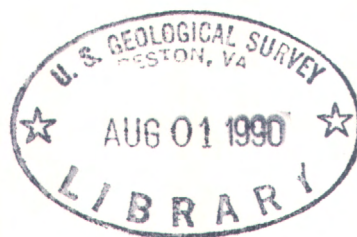


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Water Resources Data New Jersey Water Year 1989

Volume 1. Atlantic Slope Basins,
Hudson River to Cape May



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT NJ-89-1
Prepared in cooperation with the New Jersey Department of
Environmental Protection and with other agencies

CALENDAR FOR WATER YEAR 1989

1988

OCTOBER

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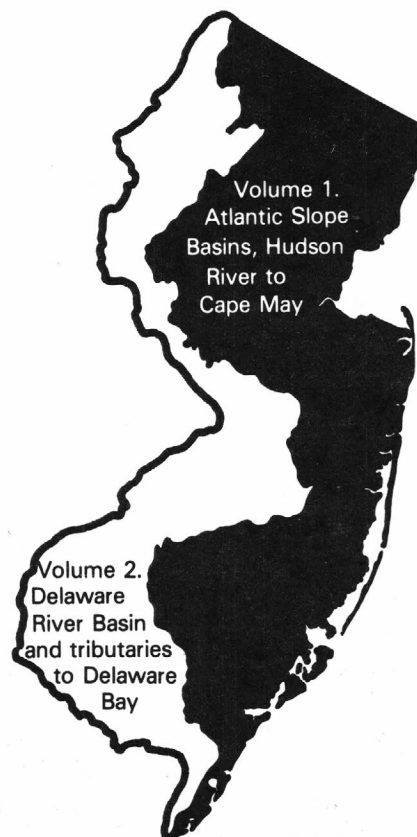
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Water Resources Data New Jersey Water Year 1989

Volume 1. Atlantic Slope Basins, Hudson River to Cape May

by W.R. Bauersfeld, E.W. Moshinsky, E.A. Pustay, and W.D. Jones



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT NJ-89-1
Prepared in cooperation with the New Jersey
Department of Environmental Protection
and with other agencies

UNITED STATES DEPARTMENT OF THE INTERIOR

MANUEL LUJAN, JR., Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

For information on the water program in New Jersey write to

District Chief, Water Resources Division
U.S. Geological Survey
Mountain View Office Park
810 Bear Tavern Road, Suite 206
West Trenton, New Jersey 08628

PREFACE

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

Hydrologic data for New Jersey are contained in 2 volumes:

- Volume 1. Atlantic Slope Basins, Hudson River to Cape May
- Volume 2. Delaware River Basin and tributaries to Delaware Bay

This report is the culmination of a concerted effort by dedicated personnel of the U.S. Geological Survey who collected, compiled, analyzed, verified, and organized the data, and who typed, edited, and assembled the report. The authors had primary responsibility for assuring that the information contained herein is accurate, complete, and adheres to Geological Survey policy and established guidelines. The following individuals contributed significantly to the completion of the report.

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Jacob Gibs

Robert D. Schopp

M.D. Morgan word processed the text of the report, and G.L. Simpson drafted the illustrations.

The data were collected, computed, and processed by the following personnel:

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M.J. DeLuca	J.D. Joyner	R.G. Reiser	

This report was prepared in cooperation with the State of New Jersey and with other agencies under the general supervision of Janice R. Ward, Associate District Chief for Hydrologic Data Assessment and Information Management; Donald E. Vaupel, District Chief, New Jersey; and Stanley P. Sauer, Regional Hydrologist, Northeastern Region.

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15. Supplementary Notes Prepared in cooperation with the New Jersey Department of Environmental Protection and with other agencies.			
16. Abstract (Limit: 200 words) Water Resources data for the 1989 water year for New Jersey consist of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water levels and water quality of ground water. This volume of the report contains discharge records for 73 gaging stations; tide summaries for 1 station; stage and contents for 15 lakes and reservoirs; water quality for 61 surface-water sites and 116 wells; and water levels for 69 observation wells. Also included are data for 39 crest-stage partial-record stations, 11 tidal crest-stage gages, and 58 low-flow partial-record stations. Additional water data were collected at 54 sites, not part of the systematic data collection program, and are published as miscellaneous measurements. These data represent that part of the national water data system operated by U.S. Geological Survey and cooperating State and Federal agencies in New Jersey.			
17. Document Analysis a. Descriptors *New Jersey, *Hydrologic data, *Surface water, *Ground water, *Water quality, Flow rate, Gaging stations, Lakes, Reservoirs, Chemical analyses, Sediments, Water temperatures, Sampling sites, Water Levels, Water Analyses. b. Identifiers/Open-Ended Terms c. COSATI Field/Group			
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[Letter after station name designates type of data: (d) discharge, (c) chemical, (m) microbiological, (s) sediment, (t) water temperature, (e) elevation, gage height or contents]

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WATER RESOURCES DATA - NEW JERSEY, 1989

INTRODUCTION

The Water Resources Division of the U.S. Geological Survey, in cooperation with State agencies, obtains a large amount of data pertaining to the water resources of New Jersey each water year. These data, accumulated during many water years, constitute a valuable data base for developing an improved understanding of the water resources of the State. To make these data readily available to interested parties outside the Geological Survey, the data are published annually in this report series entitled "Water Resources Data - New Jersey."

This report series includes records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water levels and water quality of ground-water wells. This volume contains records for water discharge at 73 gaging stations; tide summaries at 1 gaging station; stage and contents at 15 lakes and reservoirs; water quality at 61 surface-water stations and 116 wells; and water levels at 69 observation wells. Records included for ground-water levels are only a part of those obtained during the year. Also included are data for 39 crest-stage partial-record stations and stage only at 12 tidal crest-stage gages. Locations of these sites are shown on figures 11, 12, 13, and 14. Additional water data were collected at various sites not involved in the systematic data-collection program. Discharge measurements were made at 58 low-flow partial-record stations. Miscellaneous data were collected at 54 discharge measuring sites and 2 water-quality sampling sites. These data represent that part of the National Water Data System collected by the U.S. Geological Survey and cooperating State and Federal agencies in New Jersey.

This series of annual reports for New Jersey began with the 1961 water year with a report that contained only data relating to the quantities of surface water. For the 1964 water year, a similar report was introduced that contained only data relating to water quality. Beginning with the 1975 water year, the report format was changed to present, in one volume, data on quantities of surface water, quality of surface and ground water, and ground-water levels. Beginning with the 1977 water year, these data were published in two volumes.

Prior to introduction of this series and for several water years concurrent with it, water-resources data for New Jersey were published in U.S. Geological Survey Water-Supply Papers. Data on stream discharge and stage and on lake or reservoir contents and stage, through September 1960, were published annually under the title "Surface-Water Supply of the United States, Part 1B." For the 1961 through 1970 water years, the data were published in two 5-year reports. Data on chemical quality, temperature, and suspended sediment for the 1941 through 1970 water years were published annually under the title "Quality of Surface Waters of the United States," and water levels for the 1935 through 1974 water years were published under the title "Ground-Water Levels in the United States." The above mentioned Water-Supply Papers may be consulted in the libraries of the principal cities of the United States and may be purchased from Books and Open-file Reports Section, Federal Center, Building 4, Box 25425, Denver, CO, 80225.

Publications similar to this report are published annually by the Geological Survey for all States. These official Survey reports have an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this volume is identified as "U.S. Geological Survey Water-Data Report NJ-89-1." For archiving and general distribution, the reports for 1971-74 water years also are identified as water-data reports. These water-data reports are for sale in paper copy or in microfiche by the National Technical Information, Service, U.S. Department of Commerce, Springfield, VA 22161.

Additional information, including current prices, for ordering specific reports may be obtained from the District Chief at the address given on the back of the title page or by telephone (609) 771-3900.

COOPERATION

This report was prepared by the U.S. Geological Survey under cooperative agreement with the following organizations:

New Jersey Department of Environmental Protection, Judith A. Yaskin, Commissioner.
Division of Water Resources, Eric J. Evenson, Acting Director.
New Jersey Water Supply Authority, Rocco Ricci, Executive Director.
North Jersey District Water Supply Commission, Dean C. Noll, Chief Engineer.
Passaic Valley Water Commission, W.I. Inhoffer, General Superintendent and Chief Engineer.
County of Bergen, Edward R. Ranuska, director of Public Works and County Engineer.
County of Camden, Barton Harrison, Chairman of Camden County Planning Board.
County of Gloucester, Robert V. Scarpino, Director of Planning.
County of Somerset, Thomas E. Decker, County Engineer, and Thomas Harris, Administrative Engineer.
Township of West Windsor, Larry Ellery, Chairman of Environmental Commission.

Assistance in the form of funds was given by the Corps of Engineers, U.S. Army, in collecting records for 17 surface water stations, and by the U.S. Army Armament Research and Development Center for the collection of records at 3 surface-water stations. In addition, several stations were operated fully or partially from funds appropriated directly to the Geological Survey. Funding was also supplied by the following Federal Energy Regulatory Commission licensee: Jersey Central Power and Light Company and Independent Hydro Developers Inc. Assistance was provided by the National Weather Service and the National Ocean Service.

The following organizations aided in collecting records:

Municipalities of Atlantic City, Jersey City, Newark, New Brunswick and Spotswood; American Cyanamid Company; Elizabethtown Water Company; Ewing-Lawrence Sewerage Authority; Hackensack Water Company; New Jersey--American Water Company (formerly Monmouth Consolidated Water Company and Commonwealth Water Company); and Jersey Central Power and Light Company.

Organizations that supplied data are acknowledged in station descriptions.

SUMMARY OF HYDROLOGIC CONDITIONS

Streamflow

Streamflow for the 1989 water year was about normal. The year began with below-normal streamflow but ended with well above-normal streamflow. Precipitation ranged from 56.40 inches (133 percent of the 1951-80, 30-year mean) at Newark to 48.08 inches (115 percent of the 30-year mean) at Atlantic City. Figure 1 shows monthly precipitation at three National Weather Service sites compared with the 30-year means. Combined contents at 13 major water-supply reservoirs was about average at the beginning of the year and, at most sites, water levels were above spillway elevations from April through July (see figure 2).

Water year 1989 began with below-normal streamflow, ranging from 84 percent of long-term normal (1918-89) in the northern part of the State to 72 percent of long-term normal (1926-89) in the southern part. Streamflow continued to be deficient through March, reflecting below-normal precipitation. Snow cover, which accounts for much of the spring runoff, was light, with snowfall about 20 inches less than normal. A drought warning was issued in January in the Delaware River basin as contents of reservoirs in the upper basin in New York fell to about 50 percent of capacity. Water conservation also was stressed in other areas of the State. Streamflow began to increase significantly in March and April, when precipitation was about normal. In May, precipitation was extremely high, with reports of 12.4 inches at Charlotteburg (8.5 inches above normal) and 12.5 inches at Morris Plains (8.3 inches above normal). Some minor flooding was reported in northern communities. Streamflow increased to more than 200 percent of normal in May. Reservoir contents also rose sharply and, by the end of May, the Delaware River reservoirs were at about 88 percent of capacity, and some reservoirs in the Hackensack and Passaic River basins were spilling. Drought warning in the Delaware River basin was lifted on May 12. Above-normal precipitation was recorded in June, July, August, and September, with September precipitation more than 200 percent of normal (see figure 1). At some sites in September, precipitation was recorded on 11 consecutive days. Long Valley, in northern New Jersey, reported 7.7 inches in the 48-hour period September 20-21. Peak flow for the year was recorded at many stream-gaging sites on September 20. No major flooding was reported during these periods, reflecting the uniform precipitation distribution. At the end of the water year, streamflow was 327 percent of normal in the north and 244 percent of normal in the south.

Streamflow at the index station for northern New Jersey (South Branch Raritan River near High Bridge) averaged 122 ft³/s for the water year; this flow is 100 percent of the 1918-89 average. Streamflow at the index station for southern New Jersey (Great Egg Harbor River at Folsom) averaged 86.3 ft³/s for the water year; this flow is 100 percent of the 1926-89 average. The observed annual mean discharge of the Delaware River at Trenton was 10,510 ft³/s, which is 90 percent of the 1913-89 average. The Delaware River is highly regulated by reservoirs and diversions. The natural flow at Trenton (adjusted for upstream storage and diversion) was 99 percent of normal for the year. Figure 3 compares monthly mean discharge at each of these index gaging stations during the current water year with the long-term normal (1951-80) monthly discharge. Figure 4 compares annual mean discharge at each of these index gaging stations with the mean annual discharge for the period of record.

Combined usable storage in 13 major water-supply reservoirs in New Jersey increased from 55.4 billion gallons (72 percent of capacity) on October 1, 1988, to 67.9 billion gallons (88 percent of capacity) on September 30, 1989. Storage in Wanakee Reservoir increased from 14.9 billion gallons (54 percent of capacity) on October 1, 1988, to 24.2 billion gallons (82 percent of capacity) on September 30, 1989. Pumped storage in Round Valley Reservoir, the largest capacity reservoir in the State, increased from 53.2 billion gallons (96.7 percent of capacity) on October 1, 1988, to 53.4 billion gallons (97.1 percent of capacity) on September 30, 1989.

Water Quality

Below-normal streamflow during the first half of the water year decreased dilution of dissolved solids in streams throughout the State, and increased dilution during the second half of the year as streamflow increased to normal and above normal. Dilution of dissolved solids generally results in an improvement in water quality because concentrations of undesirable substances, such as trace elements, organic compounds, nutrients, bacteria, and nuisance aquatic organisms, usually also are diluted. The degree of dilution is apparent when monthly mean values of specific conductance, which is related directly to dissolved-solids concentration, for 1989 are compared with mean specific-conductance values for an earlier period. Figure 5 compares specific-conductance values for the Delaware River at Trenton, a large drainage area in central New Jersey as well as parts of New York and Pennsylvania, in 1989 with those for 1988, and with the mean for 1981-88. High specific-conductance values are readily apparent for most of the months from October through March. The values for most of the remaining months are normal or below normal. The month of September is omitted because of insufficient data.

Polychlorinated biphenyls (PCBs) and a number of pesticides commonly are detected in New Jersey streams. Table 1 summarizes the frequency of detection of these compounds in bottom sediments from 1976 through 1989. Detection limits during this period were 1.0 µg/kg (micrograms per kilogram) for PCN, chlordane, and PCB; 1.0 to 10 µg/kg for toxaphene, and 0.1 µg/kg for the other compounds. The number of sites at which samples were collected ranged from 13 to 35 per year, with a median of 27 per year. Sites sampled more than once in a year were counted only once. The organochlorine compounds chlordane, dieldrin, DDT (and its decomposition products DDD and DDE), and PCBs are the most commonly detected organic compounds in stream-bottom sediments in the State. Chlordane and dieldrin have been used widely to control soil pests as well as termites and ants. The production and use of DDT, a common, low-cost, broad-spectrum pesticide, have been banned in the United States since 1972. PCBs were used in many industrial and manufactured items (for example, lubricants, dyes, and hydraulic fluids), but their use has been restricted to environmentally closed systems (for example, electrical capacitors and transformers) since 1971. Common sources of PCBs include industrial and municipal effluents, landfills and other soil-disposal sites, and incineration of material containing PCBs (Natural Resources Council, 1979). All of these organochlorine compounds persist in the environment and still are found in surface and ground waters in the State despite the restriction or prohibition of their use.

Figure 6 summarizes the frequency of detection of chlordane, DDT, DDD, DDE, and PCBs in New Jersey stream-bottom samples for 1976-89. Only those sites for which water-quality data are presented in either volume of this report are included. Figure 6 shows the percentage of samples collected in which the concentration of at least one compound exceeded 20 µg/kg--a level selected to include the highest 15 to 20 percent of values measured nationwide (J. S. Cragwall, Jr., U.S. Geological Survey, written commun., 1977). Although it is detected frequently, dieldrin is not included in figure 6 because a concentration greater than 20 µg/kg was measured only three times during this period. Figure 7 shows the locations of water-quality stations sampled during the 1989 water year at which the concentration of at least one of these compounds exceeded 20 µg/kg.

The U.S. Geological Survey maintains a network of saltwater-observation wells in the Coastal Plain of New Jersey to document and evaluate the movement of saline water into freshwater aquifers that serve as sources of water supply. During the 1989 water year, 138 samples were collected in eight counties. The results of the sampling of these wells are presented in the ground-water-quality tables in these reports.

Ground-Water Levels

Changes in ground-water levels during the 1989 water year were determined from a statewide network of observation wells. Ground-water levels in many water-table observation wells rose significantly during the year. Water levels in most observation wells that tap the heavily stressed confined aquifers of the Coastal Plain continued to show long-term net declines. Increased withdrawals of ground water contributed to these declines.

Monthly water levels in two water-table observation wells in 1989 are compared with monthly extremes and long-term averages in figure 8. The wells are the Bird well (NJ-WRD well number 19-0002) in Hunterdon County and the Cramer well (NJ-WRD well number 29-0486) in Ocean County. For further comparison, 20-year water-level hydrographs of two Coastal Plain wells, one water-table well (NJ-WRD well number 05-0689) and one artesian well (NJ-WRD well number 07-0413), are presented in figure 9. In addition, multi-year hydrographs are provided with the 1989 water year water-level data for most of the wells included in this report.

Water levels in the water-table aquifers of the Coastal Plain were declining slowly at the beginning of the 1989 water year. This decline continued through February, when some water levels were near record lows. Water levels rose significantly through the remainder of the water year. One of the greatest increases occurred in the Lebanon State Forest 23-D well (NJ-WRD well number 05-0689), where the water level rose by 6.1 feet during the last 7 months of the water year.

Observation wells that tap the heavily stressed confined Coastal Plain aquifers continued to show long-term net declines in many areas. New lows of record were set in nine Coastal Plain artesian observation wells. The greatest water-level decline in the 1989 water year occurred in the Wenonah-Mount Laurel aquifer at the New Brooklyn Park 3 observation well (NJ-WRD well number 07-0478), where the previous record low was exceeded by 4.18 feet. Other aquifers in which previous lows of record were exceeded include the Potomac-Raritan-Magothy aquifer system, the Englishtown aquifer system, and the Piney Point aquifer.

Table 1.--Frequency of detection of organochlorine and organophosphorus compounds in bottom materials of New Jersey streams, for water years, 1976-89

COMPOUND	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
<u>Organochlorine compounds</u>														
Chlordane	●	⊖	⊖	●	●	⊖	⊖	⊖	⊖	⊖	⊖	⊖	●	⊖
DDD	●	⊖	⊖	●	●	●	⊖	●	⊖	⊖	⊖	●	●	●
DDE	●		⊖	⊖	⊖	⊖	●	⊖	⊖	⊖	⊖	●	⊖	⊖
DDT	●	⊖	⊖	⊖	⊖	●	⊖	⊖	⊖	⊖	⊖	●	⊖	⊖
PCB	⊖	⊖	⊖	⊖	●	⊖	●	⊖	⊖	⊖	⊖	⊖	⊖	⊖
Dieldrin	●	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖
Endosulfane		○		○	○	○	○	○	○	○	○	⊖	○	○
Heptachlor Epoxide	○	○	○	○	○	○	○	○	○	○	⊖	⊖	⊖	⊖
Aldrin, Lindane, Endrin Toxaphene, Heptachlor	○	○	○	○	○	○	○	○	○	○	○	○	⊖	○
Perthane														○
PCN			○	○	○	○	○	○	○	○	○	○	○	○
Mirex					○	○	○	○	○	○	○	○	○	○
<u>Organophosphorus compounds</u>														
Methoxychlor, Malathion, Parathion, Diazanone, Methyl Parathion, Ethyl Trithion, Methyl Trithion, Ethion			○	○	○	○	○	○	○	○	○	○	⊖	⊖

Frequency (rounded to nearest whole number): ○ (0 - 25%), ⊖ (26 - 50%), ⊖ (51 - 75%), ● (76 - 100%)

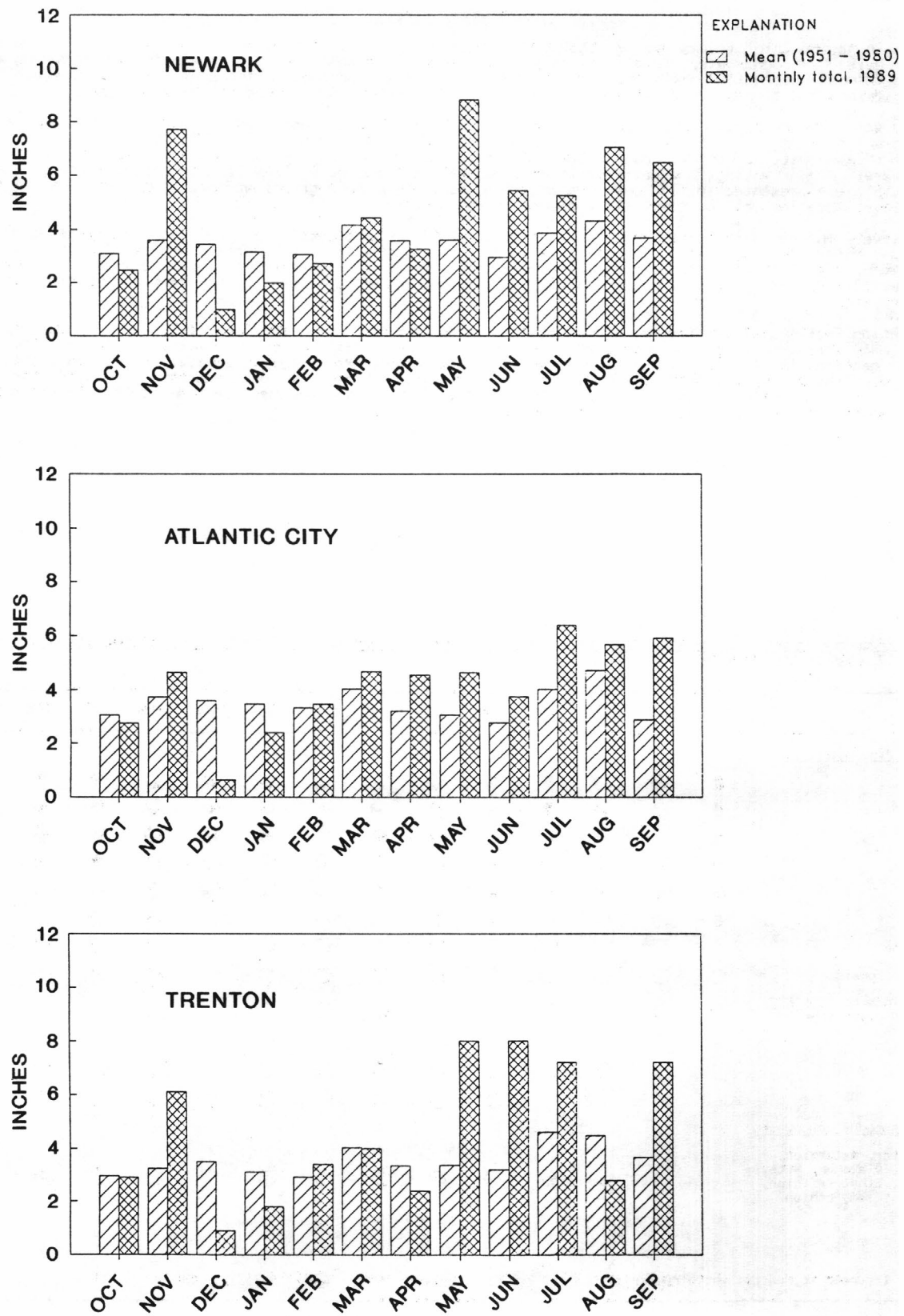
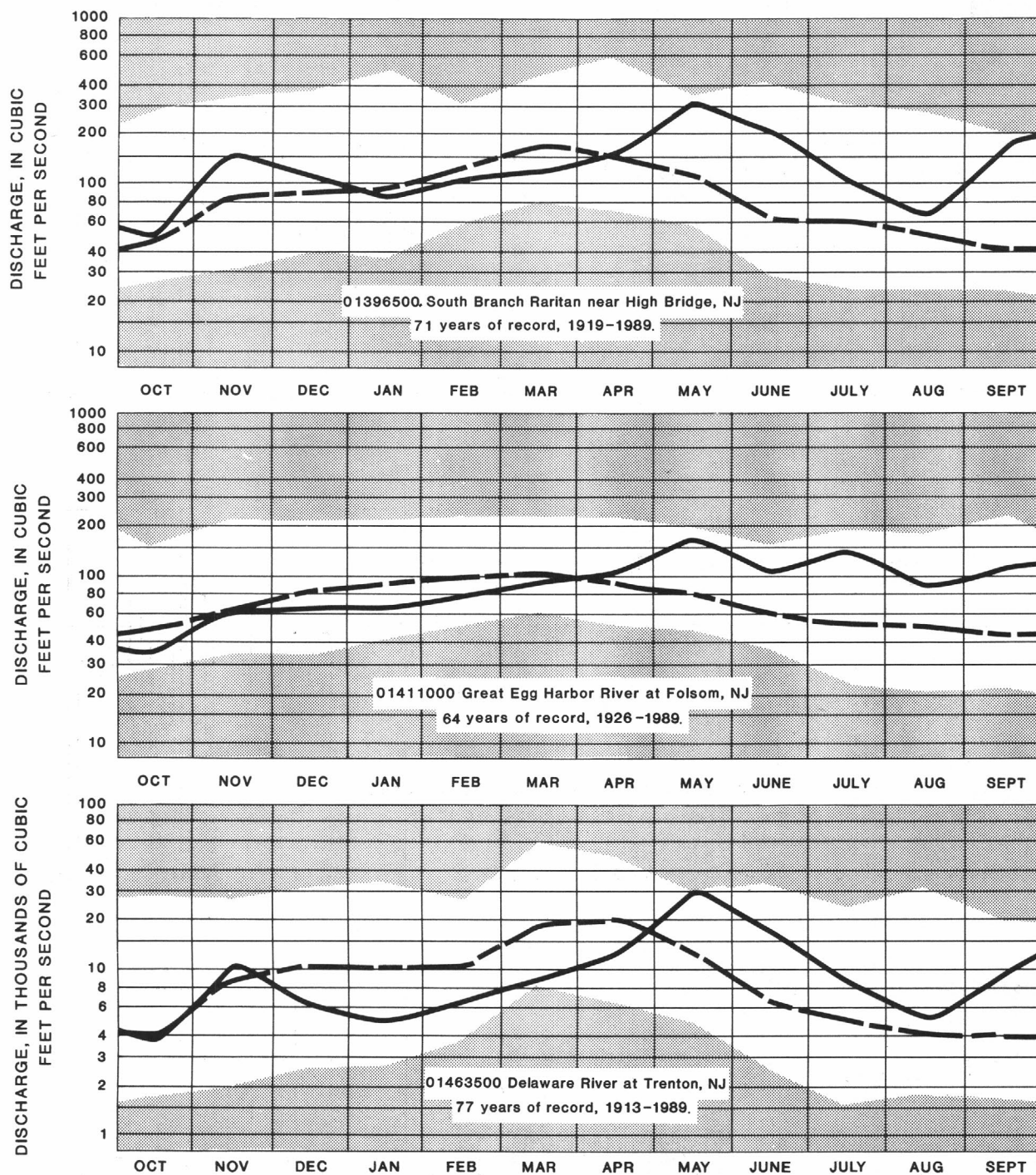


Figure 1.--Monthly precipitation at three National Weather Service locations.



Unshaded area.--Indicates range between highest and lowest mean recorded for the month, prior to 1989 water year.

Broken line.--Indicates normal (median of the monthly means) for the standard reference period, 1951-1980.

Solid line.--Indicates observed monthly mean flow for the 1989 water year.

Figure 2.--Monthly mean discharge at index gaging station.

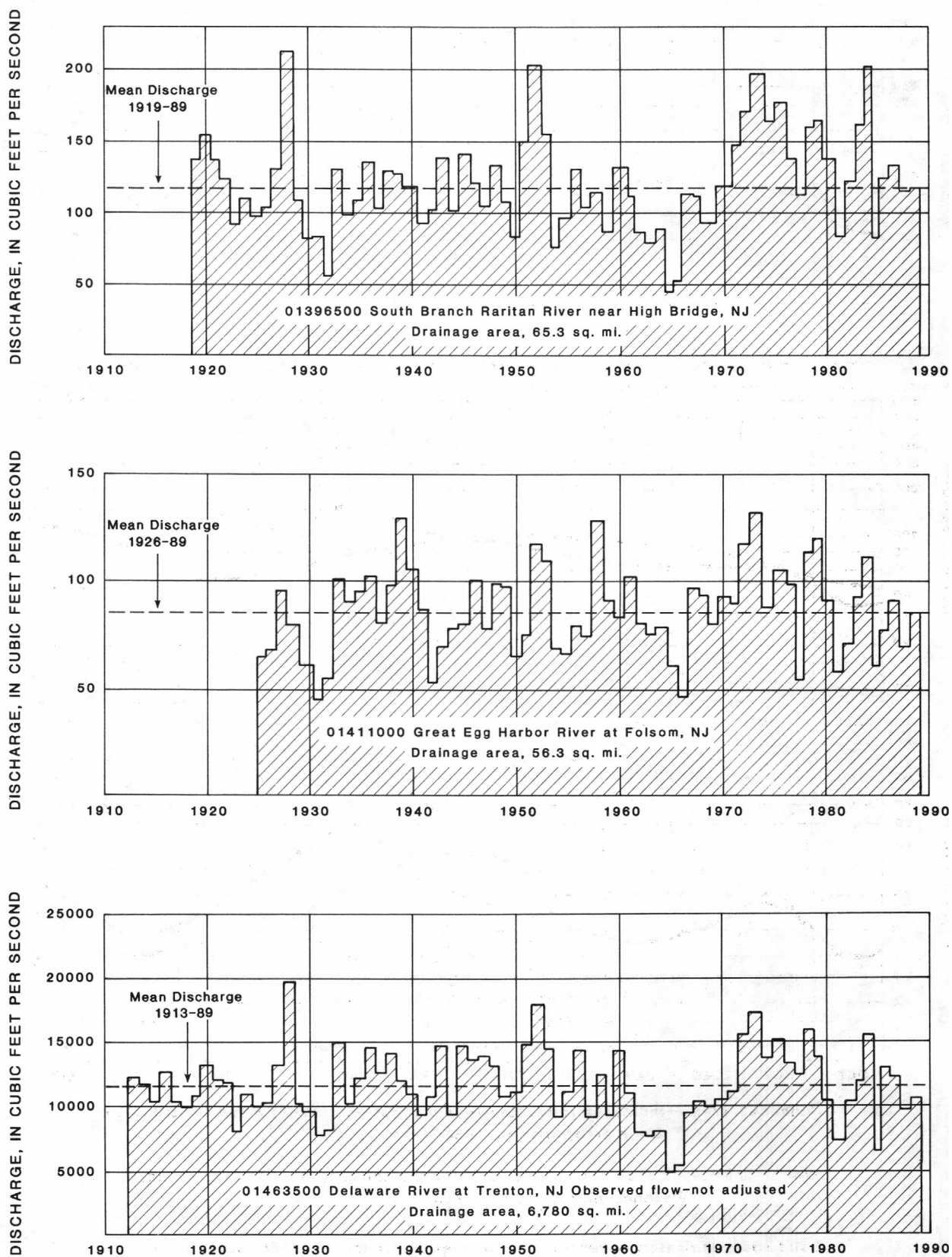


Figure 3.--Annual mean discharge at index gaging stations.

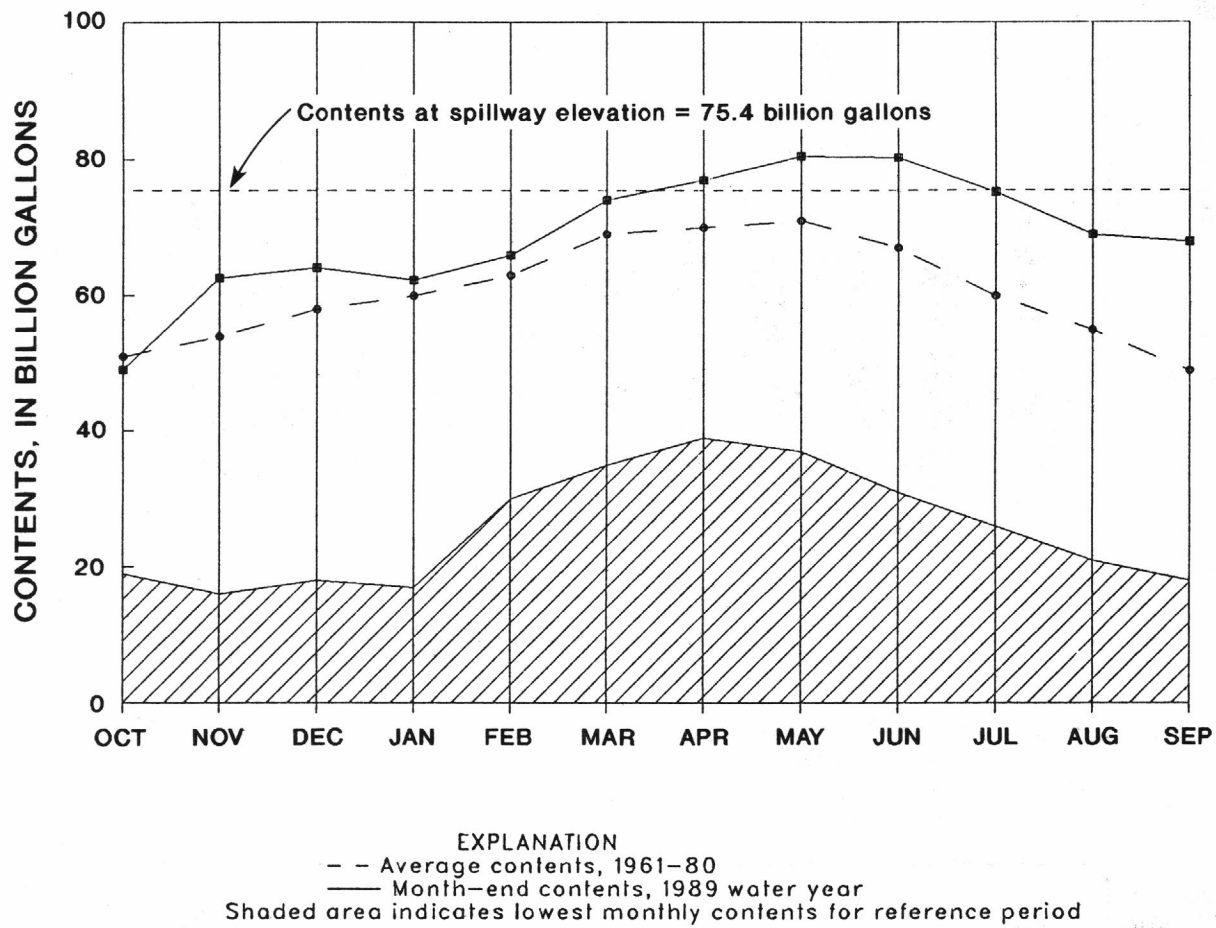


Figure 4.--Combined usable storage in 13 major water-supply reservoirs.

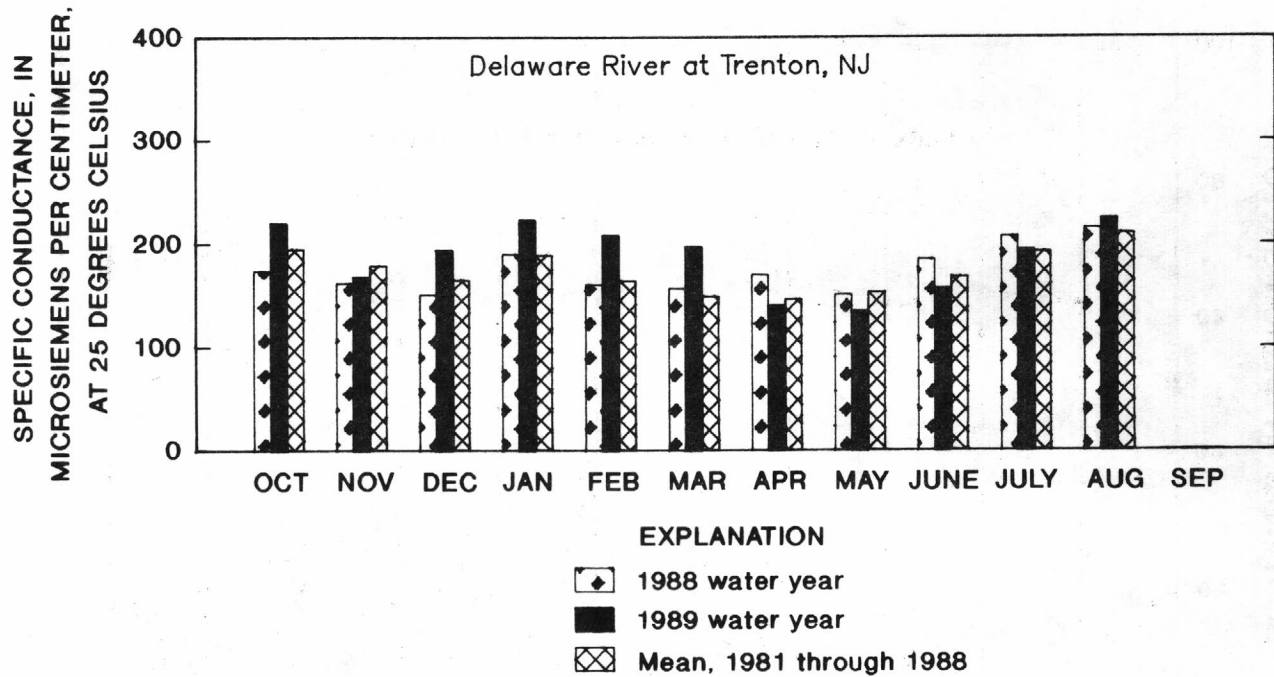


Figure 5.--Monthly mean specific conductance at Delaware River at Trenton.

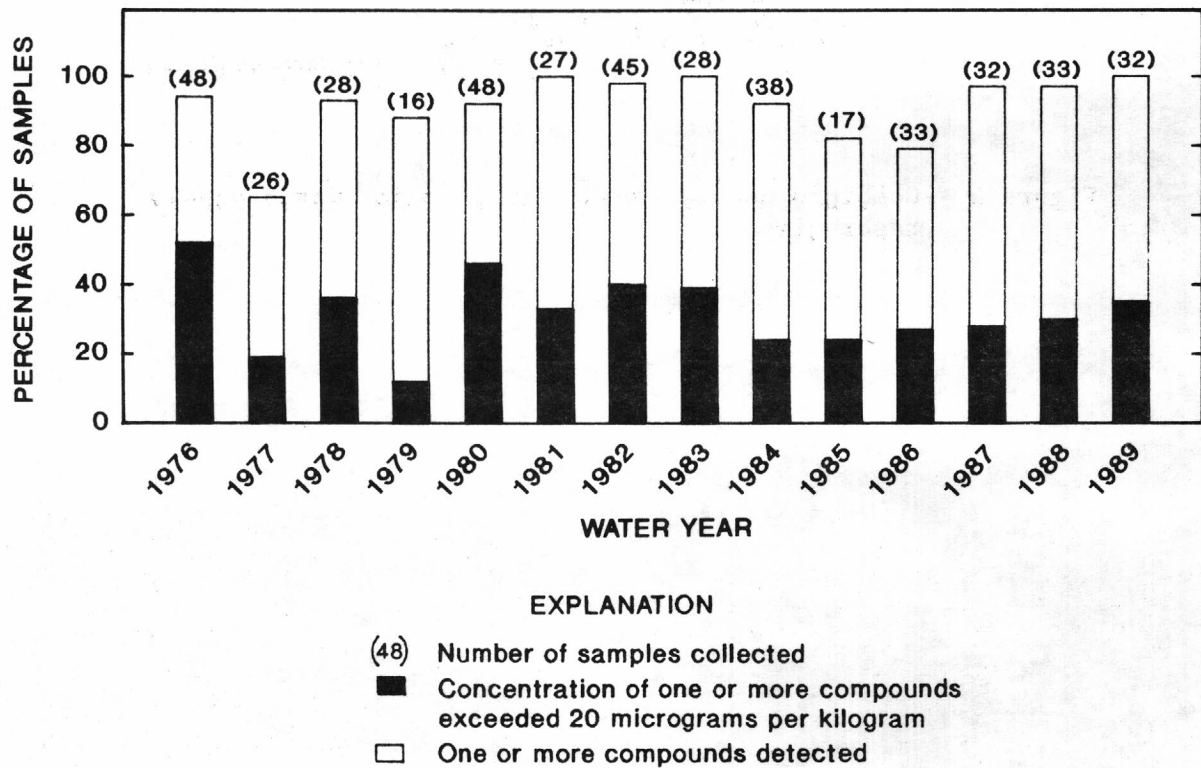


Figure 6.--Frequency of detection of chlordanes, DDT, DDE, DDD and PCBs in stream bottom material.

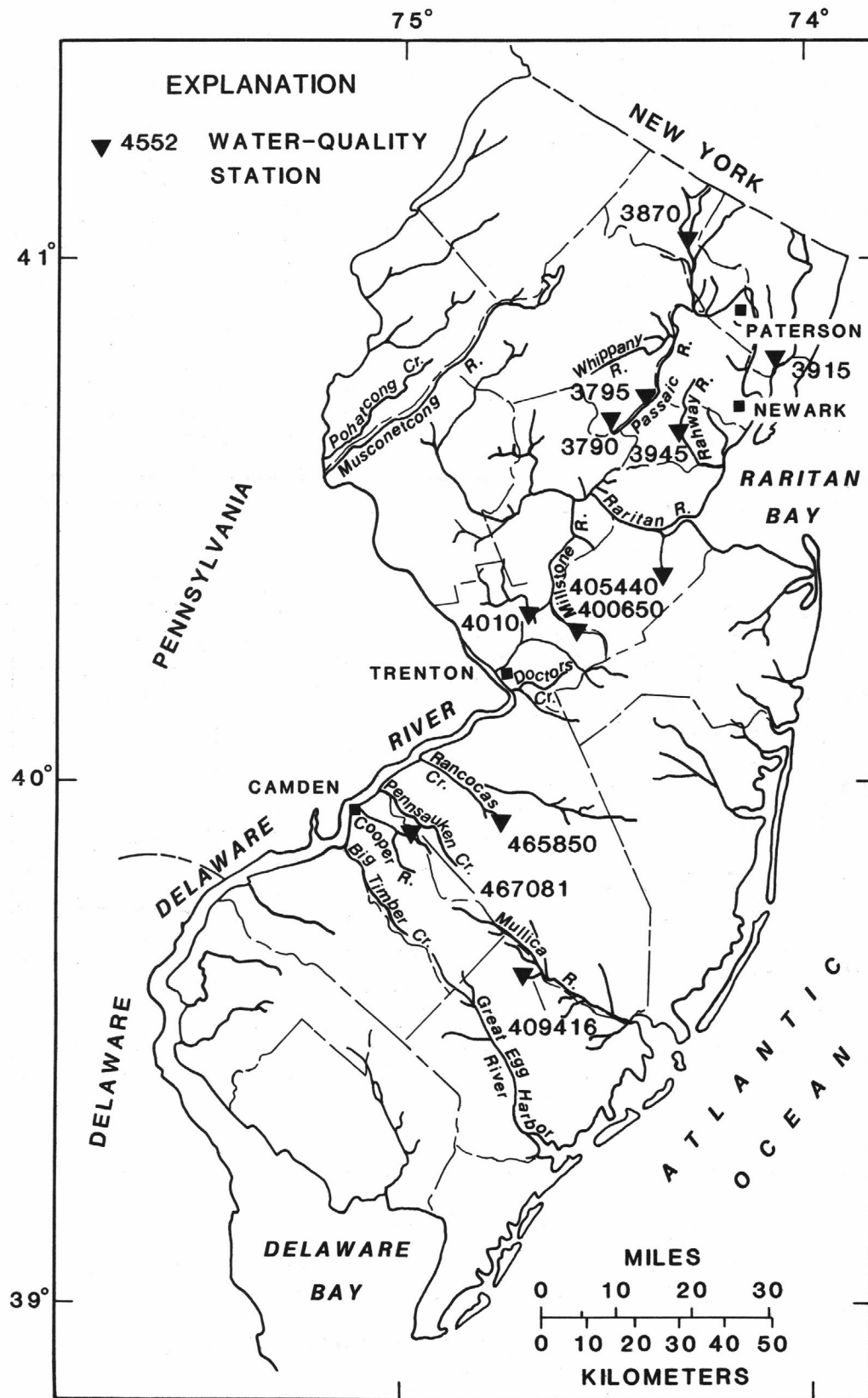
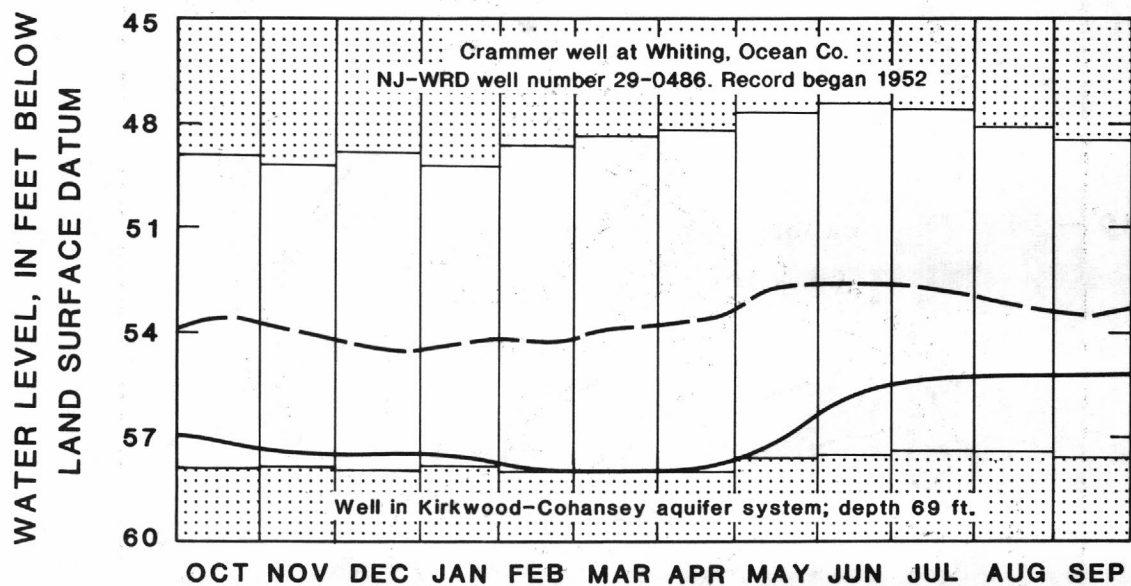
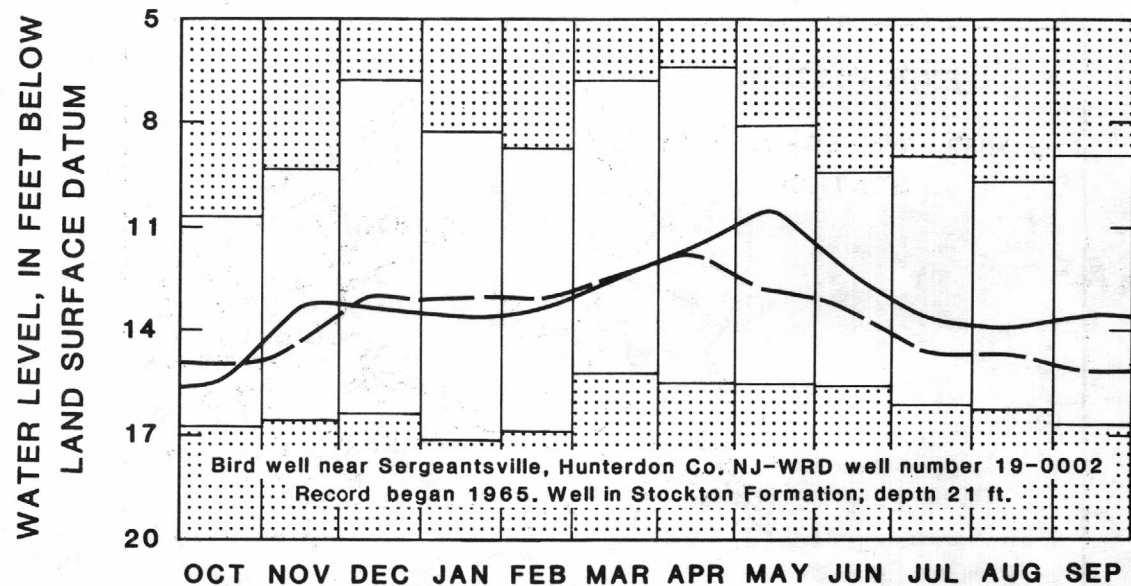


Figure 7.--Locations of water-quality stations with concentrations of chlordane, DDD, DDE, DDT, or PCBs in bottom material greater than 20 micrograms per kilogram, water year 1989.



Unshaded area -- Indicates range between highest and lowest recorded monthly water levels, prior to current year.

Dashed line -- Indicates average of monthly water levels, prior to current year.

Solid line -- Indicates monthly mean water level for the current year.

Figure 8.--Monthly ground-water levels at key water-table observation wells.

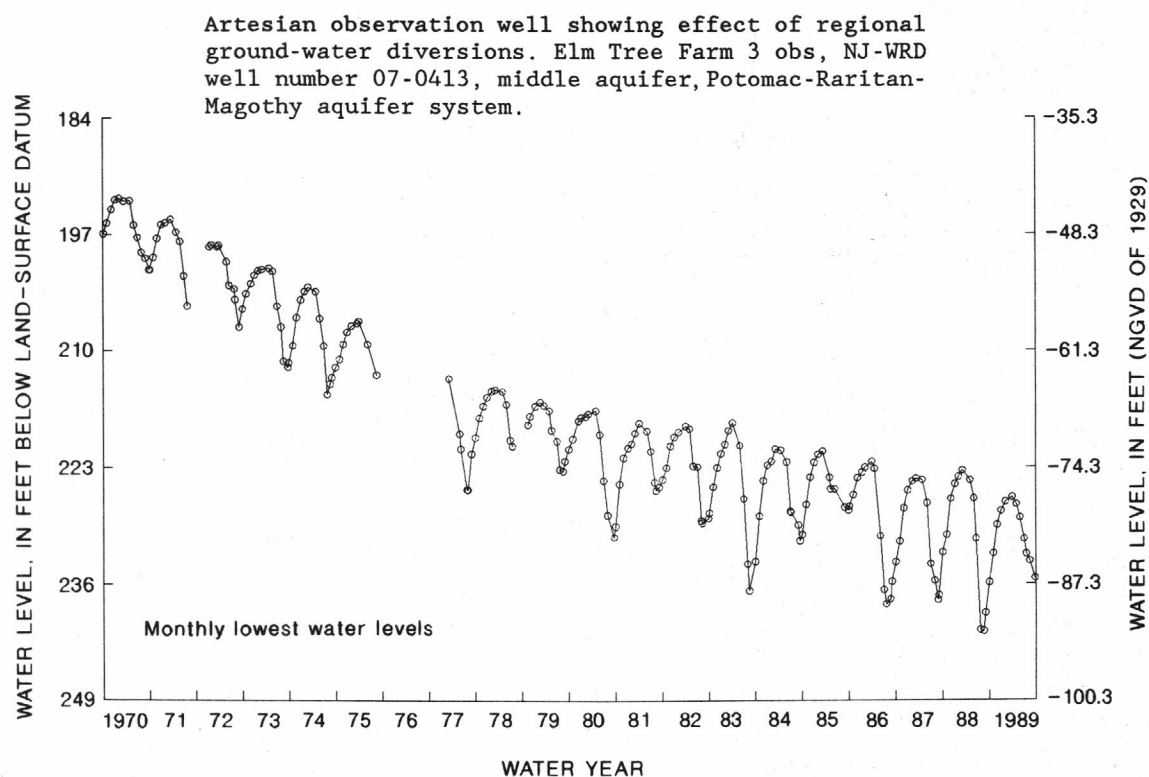
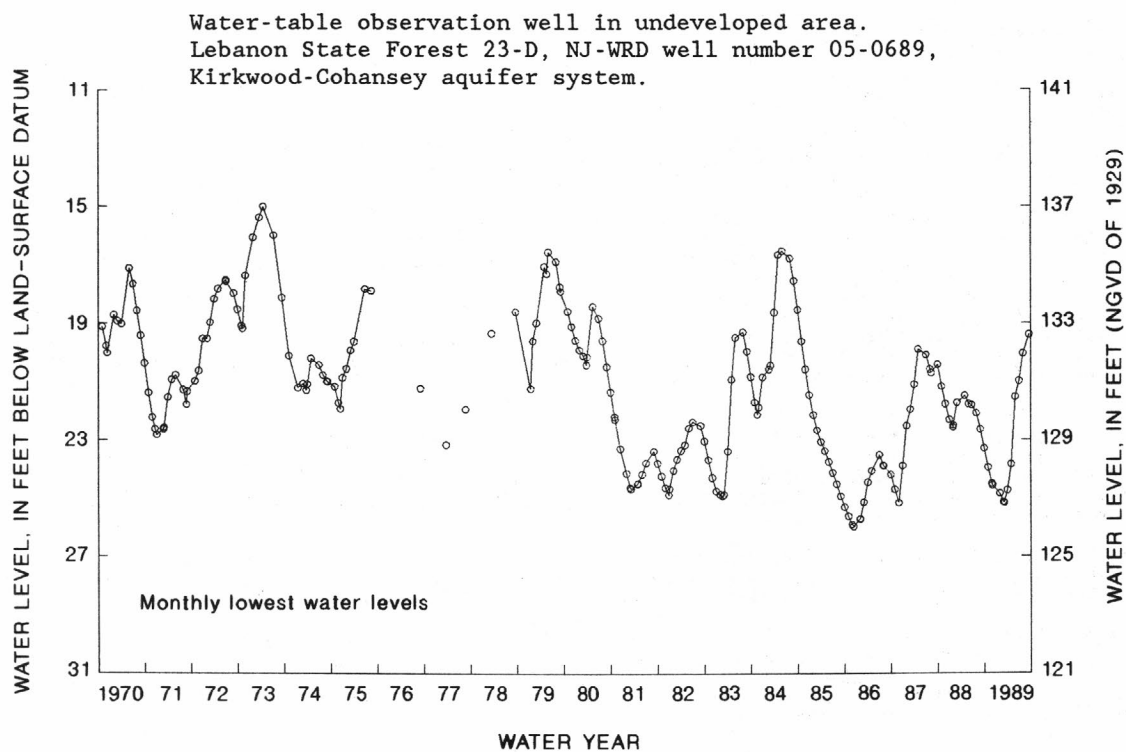


Figure 9.--Twenty-year water-level hydrographs of one artesian and one water-table observation well.

SPECIAL NETWORKS AND PROGRAMS

Hydrologic Bench-mark Network is a network of 57 sites in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by the activities of man. The Bench-mark Network station published in this report is McDonalds Branch in Lebanon State Forest, NJ (01466500).

National Stream Quality Accounting Network (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in natural or regional water-quality planning and management. The 500 or so sites in NASQAN are generally located at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey Office of Water Data Coordination in consultation with the Water Resources Council. The objectives of NASQAN are (1) to obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting such that the data may be used for, (2) description of the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (3) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics, and (4) providing a nationally consistent data base useful for water-quality assessment and hydrologic research. NASQAN stations published in this report are: Passaic River at Little Falls, NJ (01389500), Raritan River at Queens Bridge, at Bound Brook, NJ (01403300), Toms River near Toms River, NJ (01408500), West Branch Wading River at Maxwell, NJ (01409815), Maurice River at Norma, NJ (01411500), and Delaware River at Trenton, NJ (01463500).

The National Trends Network (NTN) is a 150-station network for sampling atmospheric deposition in the United States. The purpose of the network is to determine the variability, both in location and in time, of the composition of atmospheric deposition, which includes snow, rain, dust particles, aerosols, and gases. The core from which the NTN was built was the already-existing deposition-monitoring network of the National Atmospheric Deposition Program (NADP). No NTN stations are published in this report.

Radiochemical Program is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States. The Radiochemical Program station published in this report is Delaware River at Trenton, NJ (01463500).

Tritium Network is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States. No Tritium Network stations are published in this report.

EXPLANATION OF THE RECORDS

The surface-water and ground-water records published in this report are for the 1989 water year that began October 1, 1988, and ended September 30, 1989. A calendar of the water year is provided on the inside of the front cover. The records contain streamflow data, stage and content data for lakes and reservoirs, water-quality data for surface and ground water, and ground-water-level data. The locations of the stations and wells where the data were collected are shown in figures 11, 12, 13, and 14. The following sections of the introductory text are presented to provide users with a more detailed explanation of how the hydrologic data published in this report were collected, analyzed, computed, and arranged for presentation.

Station Identification Numbers

Each data station, whether streamsite or well, in this report is assigned a unique identification number. This number is unique in that it applies specifically to a given station and to no other. The number usually is assigned when a station is first established and is retained for that station indefinitely. The systems used by the U.S. Geological Survey to assign identification numbers for surface-water stations and for ground-water well sites differ, but both are based on geographic location. Generally the "downstream order" system is used for regular surface-water stations and the "latitude-longitude" system is used for wells.

Downstream Order System

Since October 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a mainstream station are listed before that station. A station on a tributary that enters between two mainstream stations is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary with respect to the stream to which it is immediately tributary is indicated by an indentation in the "List of Stations" in the front of this report. Each indentation represents one rank. This downstream order and system of indentation shows which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

The station-identification number is assigned according to downstream order. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete eight-digit number for each station, such as 01396500, which appears just to the left of the station name, includes the two-digit Part number "01" plus the 6-digit downstream-order number "396500". The Part number designates the major drainage basin; for example, Part "01" covers the North Atlantic slope basins.

Latitude-Longitude System

The identification numbers for wells and miscellaneous surface-water sites are assigned according to the grid system of latitude and longitude. The number consists of 15 digits. The first six digits denote the 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 the wells or other sites within a 1-second grid. This site-identification number, once assigned, is a pure number and has no locational significance. In the rare instance where the initial determination of latitude and longitude are found to be in error, the station will retain its initial identification number; however, its true latitude and longitude will be listed in the LOCATION paragraph of the station description. (See figure below.)

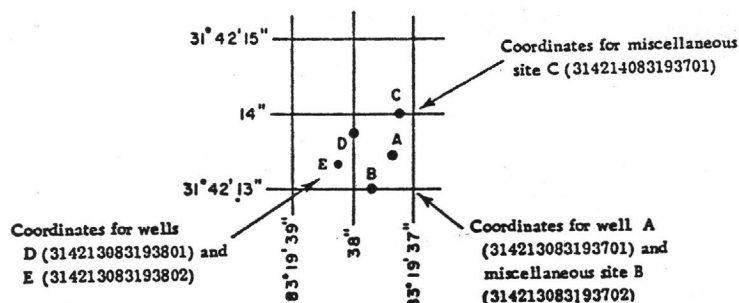


Figure 10.--System for numbering wells and miscellaneous sites (latitude and longitude).

Records of Stage and Water Discharge

Records of stage and water discharge may be complete or partial. Complete records of discharge are those obtained using a continuous stage-recording device through which either instantaneous or mean daily discharges may be computed for any time, or any period of time, during the period of record. Complete records of lake or reservoir content, similarly, are those for which stage or content may be computed or estimated with reasonable accuracy for any time, or period of time. They may be obtained using a continuous stage-recording device, but need not be. Because daily mean discharges and end-of-day contents commonly are published for such stations, they are referred to as "daily stations."

By contrast, partial records are obtained through discrete measurements without using a continuous stage-recording device and pertain only to a few flow characteristics, or perhaps only one. The nature of the partial record is indicated by table titles such as "Crest-stage partial records," or "Low-flow partial records." Records of miscellaneous discharge measurements or of measurements from special studies, such as low-flow seepage studies, may be considered as partial records, but they are presented separately in this report. Location of all complete-record and crest-stage partial-record stations for which data are given in this report are shown in figures 11 and 12.

Data Collection and Computation

The data obtained at a complete-record gaging station on a stream or canal consist of a continuous record of stage, individual measurements of discharge throughout a range of stages, and notations regarding factors that may affect the relationships between stage and discharge. These data, together with supplemental information, such as weather records, are used to compute daily discharges. The data obtained at a complete-record gaging station on a lake or reservoir consist of a record of stage and of notations regarding factors that may affect the relationship between stage and lake content. These data are used with stage-area and stage-capacity curves or tables to compute water-surface areas and lake storage.

Continuous records of stage are obtained with analog recorders that trace continuous graphs of stage, with digital recorders that punch stage values on paper tapes at selected time intervals, or with Data Collection Platforms (DCP) that electronically record and then transmit the data via satellite to ground receiving stations. Measurements of discharge are made with current meters using methods adopted by the Geological Survey as a result of experience accumulated since 1880. These methods are described in standard textbooks, in Water-Supply Paper 2175, and in U.S. Geological Survey Techniques of Water-Resources Investigations, Book 3, Chapter A6.

In computing discharge records, results of individual measurements are plotted against the corresponding stages, and stage-discharge relation curves are then constructed. From these curves, rating tables indicating the approximate discharge for any stage within the range of the measurements are prepared. If it is necessary to define extremes of discharge outside the range of the current-meter measurements, the curves are extended using: (1) logarithmic plotting; (2) velocity-area studies; (3) results of indirect measurements of peak discharge, such as slope-area or contracted-opening measurements, and computations of flow over dams or weirs; or (4) step-backwater techniques.

Daily mean discharges are computed by applying the daily mean stages (gage heights) to the stage-discharge curves or tables. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is determined by the shifting-control method, in which correction factors based on the individual discharge measurements and notes of the personnel making the measurements are applied to the gage heights before the discharges are determined from the curves or tables. This shifting-control method also is used if the stage-discharge relation is changed temporarily because of aquatic growth or debris on the control. For some stations, formation of ice in the winter may so obscure the stage-discharge relations that daily mean discharges must be estimated from other information such as temperature and precipitation records, notes of observations, and records for other stations in the same or nearby basins for comparable periods.

At some stream-gaging stations, the stage-discharge relation is affected by the backwater from reservoirs, tributary streams, or other sources. This necessitates the use of the slope method in which the slope or fall in a reach of the stream is a factor in computing discharge. The slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations the stage-discharge relation is affected by changing stage; at these stations the rate of change in stage is used as a factor in computing discharge.

In computing records of lake or reservoir contents, it is necessary to have available from surveys, curves or tables defining the relationship of stage and content. The application of stage to the stage-content curves or tables gives the contents from which daily, monthly, or yearly changes then are determined. If the stage-content relationship changes because of deposition of sediment in a lake or reservoir, periodic resurveys may be necessary to redefine the relationship. Even when this is done, the contents computed may become increasingly in error as the lapsed time since the last survey increases. Discharges over lake or reservoir spillways are computed from stage-discharge relationships much as other stream discharges are computed.

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 or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods, the daily discharges are estimated from the recorded range in stage, previous or following record, discharge measurements, weather records, and comparison with other station records from the same or

nearby basins. Likewise, daily contents may be estimated from operator's logs, previous or following record, inflow-outflow studies, and other information. Information explaining how estimated daily-discharge values are identified in station records is included in the next two sections, "Data Presentation" (REMARKS paragraph) and "Identifying Estimated Daily Discharge."

Data Presentation

The records published for each gaging station consist of three parts, the manuscript or station description, the data table for the current water year, and tables of monthly, annual, and other statistics. The manuscript provides, under various headings, descriptive information, such as station location; period of record; historical extremes; record accuracy; and other remarks pertinent to station operation and regulation. The following information, as appropriate, is provided with each continuous record of discharge or lake content. Comments to follow clarify information presented under the various headings of the station description.

LOCATION.--Information on locations is obtained from the most accurate maps available. The location of the gage with respect to the cultural and physical features in the vicinity and with respect to the reference place mentioned in the station name is given. River mileages, given for only a few stations, were determined by methods given in "River Mileage Measurement," Bulletin 14, Revision of October 1968, prepared by the Water Resources Council or were provided by the U.S. Army Corps of Engineers or the Delaware River Basin Commission.

DRAINAGE AREA.--Drainage areas are measured using the most accurate maps available. Because the type of maps available varies from one drainage basin to another, the accuracy of drainage areas likewise varies. Drainage areas are updated as better maps become available.

PERIOD OF RECORD.--This indicates the period for which there are published records for the station or for an equivalent station. An equivalent station is one that was in operation at a time that the present station was not, and whose location was such that records from it can reasonably be considered equivalent with records from the present station.

REVISED RECORDS.--Published records, because of new information, occasionally are found to be incorrect, and revisions are printed in later reports. Listed under this heading are all the reports in which revisions have been published for the station and the water years to which the revisions apply. If a revision did not include daily, monthly, or annual figures of discharge, that fact is noted after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the most recently revised figure was first published is given.

GAGE.--The type of gage in current use, the datum of the current gage referred to National Geodetic Vertical Datum of 1929 (see glossary), and a condensed history of the types, locations, and datums of previous gages are given under this heading.

REMARKS.--All periods of estimated daily-discharge record will either be identified by date in this paragraph of the station description for water-discharge stations or flagged in the daily-discharge table. (See next section, "Identifying Estimated Daily Discharge.") If a remarks statement is used to identify estimated record, the paragraph will begin with this information presented as the first entry. The paragraph is also used to present information relative to the accuracy of the records, to special methods of computation, to conditions that affect natural flow at the station and, possibly, to other pertinent items. For reservoir stations, information is given on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir.

COOPERATION.--Records provided by a cooperating organization or obtained for the Geological Survey by a cooperating organization are identified here.

EXTREMES OUTSIDE PERIOD OF RECORD.--Included here is information concerning major floods or unusually low flows that occurred outside the stated period of record. The information may or may not have been obtained by the U.S. Geological Survey.

REVISIONS.--If a critical error in published records is discovered, a revision is included in the first report published following discovery of the error.

Although rare, occasionally the records of a discontinued gaging station may need revision. Because, for these stations, there would be no current or, possibly, future station manuscript published to document the revision in a "Revised Records" entry, users of data for these stations who obtained the record from previously published data reports may wish to contact the offices whose addresses are given on the back of the title page of this report to determine if the published records were ever revised after the station was discontinued. Of course, if the data were obtained by computer retrieval, the data would be current and there would be no need to check because any published revision of data is always accompanied by revision of the corresponding data in computer storage.

Manuscript information for lake or reservoir stations differs from that for stream stations in the nature of the "Remarks" and in the inclusion of a skeleton stage-capacity table when daily contents are given.

The daily table for stream-gaging stations gives mean discharge for each day and is followed by monthly summaries. In the monthly summary below the daily table, 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 for some stations can also be expressed in inches (line headed "IN"). Figures for runoff in inches are omitted if there is extensive regulation or diversion or if the drainage area includes large noncontributing areas. At some stations, monthly and (or) yearly observed discharges are adjusted for reservoir storage or diversion, or diversions or reservoir contents are given. These figures are identified by a symbol and corresponding footnote.

Beginning with the 1988 water year, below the monthly summary, statistical figures are listed for current water year and period of record. The first heading is the average monthly flow data for the period of record. The line headed "MEAN" gives the average flow in cubic feet per second for that month for the period of record. The lines headed "MAX" and "MIN" give the highest and lowest mean for that month and the water year (WY) in which it occurred. Below the monthly flow statistics, summary statistics for the current water year and period of record are listed. The line headed "AVERAGE FLOW" is the average for the current year and period of record. The following lines list the extremes and date of each for the current year and period of record. The line headed "ANNUAL RUNOFF (INCHES)" is the annual total discharge in inches. The following lines list the discharges for the 10, 50, and 95 percentiles.

Data collected at partial-record stations follow the information for continuous-record sites. Data for partial-record discharge stations are presented in two tables. The first is a table of annual maximum stage and discharge at crest-stage stations, and the second is a table of discharge measurements at low-flow partial-record stations. The tables of partial-record stations are followed by a listing of discharge measurements made at sites other than continuous-record or partial-record stations. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Identifying Estimated Daily Discharge

Estimated daily-discharge values published in the water-discharge tables of annual State data reports are identified either by flagging individual daily values with the letter symbol "e" and printing a table footnote, "e Estimated" or by listing the dates of the estimated record in the REMARKS paragraph of the station description.

Accuracy of the Records

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

The accuracy attributed to the records is indicated under "REMARKS." "Excellent" means that about 95 percent of the daily discharges are within 5 percent of their true values; "good," within 10 percent; and "fair," within 15 percent. Records that do not meet the criteria mentioned are rated "poor." Different accuracies may be attributed to different parts of a given record.

Daily mean discharges in this report are given to the nearest hundredth of a cubic foot per second for values less than 1 ft³/s; to the nearest tenth between 1.0 and 10 ft³/s; to whole numbers between 10 and 1,000 ft³/s; and to 3 significant figures for more than 1,000 ft³/s. The number of significant figures used is based solely on the magnitude of the discharge value. The same rounding rules apply to discharges listed for partial-record stations and miscellaneous sites.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such stations, figures of cubic feet per second per square mile and of runoff, in inches, are not published unless satisfactory adjustments can be made for diversions, for changes in contents of reservoirs, or for other changes incident to use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or losses are large in comparison with the observed discharge.

Other Records Available

Information used in the preparation of the records in this publication, such as discharge-measurement notes, gage-height records, temperature measurements, and rating tables is on file in the New Jersey District office. Also, most of the daily mean discharges are in computer-readable form and have been analyzed statistically. Information on the availability of the unpublished information or on the results of statistical analyses of the published records may be obtained from the offices whose addresses are given on the back of the title page of this report.

Records of Surface-Water Quality

Records of surface-water quality ordinarily are obtained at or near stream-gaging stations because interpretation of records of surface-water quality nearly always requires corresponding discharge data. Records of surface-water quality in this report may involve a variety of types of data and measurement frequencies. Locations of stations for which records on the quality of surface water appear in this report are shown in figure 10.

Classification of Records

Water-quality data for surface-water sites are grouped into one of three classifications. A continuing-record station is a site where data are collected on a regularly scheduled basis. Frequency may be one or more times daily, weekly, monthly, or quarterly. A partial-record station is a site where limited water-quality data are collected systematically over a period of years. Frequency of sampling is usually less than quarterly. A miscellaneous sampling site is a location other than a continuing or partial-record station where random samples are collected to give better areal coverage to define water-quality conditions in the river basin.

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

Arrangement of Records

Water-quality records collected at a surface-water daily record station are published immediately following that record, regardless of the frequency of sample collection. Station number and name are the same for both records. Where a surface-water daily record station is not available or where the water quality differs significantly from that at the nearby surface-water station, the continuing water-quality record is published with its own station number and name in the regular downstream-order sequence. Water-quality data for partial-record stations and for miscellaneous sampling sites which are not at a surface-water daily record station appear in separate tables following the table of discharge measurements at miscellaneous sites.

On-site Measurements and Sample Collection

Water-quality data must represent the in-situ quality of the water. To assure this, certain measurements, such as water temperature, pH, and dissolved oxygen, must be made onsite when the samples are collected. In addition, specific procedures must be used in collecting, treating, and shipping the samples to the laboratory. Procedures for onsite measurements and for collecting, treating, and shipping samples are given in publications on "Techniques of Water-Resources Investigations," Book 1, Chap. D2; Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4. These references are listed under "PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS" at the end of the introductory text. Also, detailed information on collecting, treating, and shipping samples may be obtained from the Geological Survey, New Jersey District office.

In streams, concentrations of various constituents may vary within the cross section depending on variables such as flow rate, the sources of the constituents, and mixing. Generally, constituents in solid phases are more variable in the cross section than are dissolved constituents. In many cases, samples must integrate several parts of the stream cross section to be representative, especially if loads will be calculated. One sample may be representative of the cross section when the distribution of constituents is homogeneous. All samples obtained for the National Stream Quality Accounting Network (see definitions) are obtained from several verticals.

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. In some instances, apparent inconsistencies may exist in the data. For example, the orthophosphate-phosphorus concentration may exceed total phosphorus concentration. However, the difference in the inconsistent values normally is smaller than the precision of the analytical techniques. Inconsistencies between pH and carbonate and bicarbonate concentrations are commonly caused by intake or loss of carbon dioxide by the sample before it can be analyzed.

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum, minimum, and mean values for each constituent measured and are based upon hourly punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records (hourly values) may be obtained from the Geological Survey, New Jersey District Office whose address is given on the back of the title page of this report.

Water Temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at time of discharge measurements for water-discharge stations. For stations where water temperatures are taken manually once or twice daily, the water temperatures are taken at about the same time each day. Large streams have a small diurnal temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

At stations where recording instruments are used, maximum, minimum and mean temperatures for each day are published. Water temperatures measured at the time of water-discharge measurements are on file in the New Jersey District Office.

Sediment

Suspended-sediment concentrations are determined from samples collected by using depth-integrating samplers. Samples usually are obtained at several verticals in the cross section, or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentration in the cross sections.

During periods of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily or, in some instances, hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided-day method (time-discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided-day method. For periods when no samples were collected, daily discharges of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, and suspended-sediment loads for other periods of similar discharge.

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

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

Laboratory Measurements

Samples for biochemical-oxygen demand and for fecal coliform and fecal streptococcal bacteria are analyzed at the District laboratory or at the New Jersey Department of Health, Division of Laboratories and Epidemiology. Samples for nutrients are analyzed at the New Jersey Department of Health or at the Geological Survey Laboratory in Arvada, Colorado. Sediment samples are analyzed in the Geological Survey Laboratory in Harrisburg, Pennsylvania. All other samples are analyzed in the Geological Survey Laboratory in Arvada, Colorado. Methods used in analyzing sediment samples and computing sediment records are given in TWRI, Book 5, Chap. C1. Methods used by the Geological Survey laboratory are given in TWRI, Book 1, Chap. D2; Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4.

In March 1989 the National Water-Quality Laboratory discovered a bias in the turbidimetric method for sulfate analysis, indicating that values below 75 mg/L have a median positive bias of 2 mg/L above the true value for the period between 1982 and 1989. Sulfate values in this report have not been corrected for this bias.

Data Presentation

For continuing-record stations, information pertinent to the history of station operation is provided in descriptive headings preceding the tabular data. These descriptive headings give details regarding location, drainage area, period of record, type of data available, instrumentation, general remarks, cooperation, and extremes for parameters currently measured daily. Tables of chemical, physical, biological, radiochemical data, obtained at a frequency less than daily are presented first. Tables of "daily values" of specific conductance, pH, water temperature, dissolved oxygen, and suspended sediment then follow in sequence.

In the descriptive headings, if the location is identical to that of the discharge gaging station, neither the LOCATION nor the DRAINAGE AREA statements are repeated. The following information, as appropriate, is provided with each continuous-record station. Comments that follow clarify information presented under the various headings of the station description.

LOCATION.--See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

DRAINAGE AREA.--See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

PERIOD OF RECORD.--This indicates the periods for which there are published water-quality records for the station. The periods are shown separately for records of parameters measured daily or continuously and those measured less than daily. For those measured daily or continuously, periods of record are given for the parameters individually.

INSTRUMENTATION.--Information on instrumentation is given only if a water-quality monitor, temperature recorder, sediment pumping sampler, or other sampling device is in operation at a station.

REMARKS.--Remarks provide added information pertinent to the collection, analysis, or computation of the records.

COOPERATION.--Records provided by a cooperating organization or obtained for the Geological Survey by a cooperating organization are identified here.

EXTREMES.--Maximums and minimums are given only for parameters measured daily or more frequently. None are given for parameters measured weekly or less frequently, because the true maximums or minimums may not have been sampled. Extremes, when given, are provided for both the period of record and for the current water year.

REVISIONS.--If errors in published water-quality records are discovered after publication, appropriate updates are made to the Water-Quality File in the U.S. Geological Survey's computerized data system, WATSTORE, and subsequently by monthly transfer of update transactions to the U.S. Environmental Protection Agency's STORET system. Because the usual volume of updates makes it impractical to document individual changes in the State data-report series or elsewhere, potential users of U.S. Geological Survey water-quality data are encouraged to obtain all required data from the appropriate computer file to insure the most recent updates.

The surface-water-quality records for partial-record stations and miscellaneous sampling sites which are not at a surface-water daily record station are published in separate tables following the table of discharge measurements at miscellaneous sites. No descriptive statements are given for these records. Each station is published with its own station number and name in the regular downstream-order sequence.

Remark Codes

The following remark codes may appear with the water-quality data in this report:

PRINTED OUTPUT

REMARK

E	Estimated value
>	Actual value is known to be greater than the value shown
<	Actual value is known to be less than the value shown
K	Results based on colony count outside the acceptance range (non-ideal colony count)
L	Biological organism count less than 0.5 percent (organism may be observed rather than counted)
D	Biological organism count equal to or greater than 15 percent (dominant)
&	Biological organism estimated as dominant

Records of Ground-Water Levels

Only water-level data from a national network of observation wells are given in this report. These data are intended to provide a sampling and historical record of water-level changes in the Nation's most important aquifers. Locations of the observation wells in this network in New Jersey are shown in figure 13.

Data Collection and Computation

Measurements of water levels are made in many types of wells under varying conditions, but the methods of measurement are standardized to the extent possible. The equipment and measuring techniques used at each observation well ensure that measurements at each well are of consistent accuracy and reliability.

Tables of water-level data are presented by counties arranged in alphabetical order. The prime identification number for a given well is the 15-digit number that appears in the upper left corner of the table. The secondary identification number is the NJ-WRD well number, a hyphenated 6 digit identification number assigned to all New Jersey wells in the Ground Water Site Inventory (GWSI) data base. The first two digits are a code for the county in which the well is located and the last four digits are a sequence number. These NJ-WRD well numbers are being used now in the ground-water level descriptions, wells sampled for water quality analyses, and on the corresponding location maps in these reports.

Water-level records are obtained from direct measurements with a steel tape, from the punched tape of a water-level recorder, or from water-level extremes recorder. Beginning in the 1977 water year, water-level recorders were removed from some wells and replaced by water-level extremes recorders. The extremes are read from these recorders at about three month intervals, but the actual dates of occurrence of these extremes (highest and lowest water levels) are unknown. In these reports, the water-level extremes are given together with the manually measured water levels.

Most water-level measurements in this report are given in feet with reference to land-surface datum (lsd). Land-surface datum is a datum plane that is approximately at land surface at each well. The elevation of the land-surface datum is given in the well description. The height of the measuring point (MP) above or below land-surface datum is given in each well description. Water levels in wells equipped with water-level recorders are reported for every fifth day and the end of each month (eom).

Water levels are reported to as many significant figures as can be justified by the local conditions. For example, in a measurement of a depth to water of several hundred feet, the error of determining the absolute value of the total depth to water may be a few tenths of a foot, whereas the error in determining the net change of water level between successive measurements may be only a hundredth or a few hundredths of a foot. For lesser depths to water, the accuracy is greater. All measurements published herein are reported to a hundredth of a foot.

Data Presentation

Each well record consists of three parts, the station description, the data table of water levels observed during the water year, and a multi-year hydrograph. The description of the well is presented first through use of descriptive headings preceding the tabular data. The comments to follow clarify information presented under the various headings.

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

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

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

INSTRUMENTATION.--This paragraph provides information on both the frequency of measurement and the collection method used, allowing the user to better evaluate the reported water-level extremes by knowing whether they are based on weekly, monthly, or some other frequency of measurement.

DATUM.--This entry describes both the measuring point and the land-surface elevation at the well. The measuring point is described physically (such as top of collar, notch in top of casing, plug in pump base and so on), and in relation to land surface (such as 1.3 ft above land-surface datum). The elevation of the land-surface datum is described in feet above National Geodetic Vertical Datum of 1929 (NGVD of 1929); it is reported with a precision depending on the method of determination.

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

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

EXTREMES FOR PERIOD OF RECORD.--This entry contains the highest and lowest water levels of the period of record and the dates of their occurrence.

A table of water levels follows the station description for each well. Water levels are reported in feet below land-surface datum or elevation of water level. For wells equipped with recorders, only abbreviated tables are published. Mean daily water-levels are listed for every fifth day and at the end of the month (eom). The highest and lowest water levels of the water year and their dates of occurrence are shown on a line below the abbreviated table. Because all values are not published for wells with recorders, the extremes may be values that are not listed in the table. Missing records are indicated by dashes in place of the water level.

Records of Ground-Water Quality

Records of ground-water quality in this report consist of only one set of measurements for the water year. Because ground-water movement is normally slow compared to surface water, frequent measurements are not necessary for monitoring purposes. More frequent measurements may be necessary for studying ground-water problems, trends, or processes. Locations of wells for which water-quality data are published are shown in figure 13.

Laboratory Measurements

In March 1989 the National Water-Quality Laboratory discovered a bias in the turbidimetric method for sulfate analysis, indicating that values below 75 mg/L have a median positive bias of 2 mg/L above the true value for the period between 1982 and 1989. Sulfate values in this report have not been corrected for this bias.

Data Collection and Computation

The records of ground-water quality in this report were obtained from water-quality monitoring studies in specific areas. Consequently, chemical analyses are presented for some counties but not for others. As a result, the records for this year, by themselves, do not provide a balanced view of ground-water quality Statewide. Such a view can be attained only by considering records for this year in context with similar records obtained for these and other counties in earlier years.

In ground-water observation wells, water in the casing may not be representative of aquifer water quality. To collect samples representative of aquifer water, samples are collected only after at least three casing volumes of water have been pumped from the well and measurements of temperature, specific conductance, and pH have stabilized during the pumping.

Data Presentation

The records of ground-water quality are published in a section titled QUALITY OF GROUND WATER immediately following the ground-water-level records. Data for quality of ground water are listed alphabetically by County and are identified by NJ-WRD well number. No descriptive statements are given for ground-water-quality records; however, the well number, depth of well, date of sampling, and other pertinent data are given in the table containing the chemical analyses of the ground water. The REMARK codes listed for surface-water-quality records are also applicable to ground-water-quality records.

CURRENT WATER RESOURCES PROJECTS IN NEW JERSEY

The Geological Survey is currently involved in a number of hydrologic investigations in the State of New Jersey. The following is a list of these investigations. Results are published at the conclusion of short-term projects or periodically in the case of long-term projects. Hydrologic data from these projects are entered into the WATSTORE data base. Subsequent sections contain information on recent publications and on WATSTORE.

Agricultural Water Demand Model for the State of New Jersey
 An Assessment of Impacts of Rolling Knoll Landfill on Nearby Water Resources
 Assessment of Ground-Water Resources in the Vicinity of Ground-Water Contamination Sites in Greenwich Township, Gloucester County, New Jersey
 Assessment of the Water Resources of Logan Township, Gloucester County, New Jersey
 Compositional Modeling of Organic Transport and Biodegradation in the Unsaturated Zone and Ground Water
 Effects of Streamflow Diversions on the Water-Quality of Selected New Jersey Estuaries
 Evaluation of Field Sampling Techniques and Analytical Methods for Organic Compounds in Ground-Water
 Flood Characteristics of New Jersey Streams
 Flood Insurance Studies for Federal Insurance Administration, HUD
 Geochemical Effects on the Corrosivity of Ground Water in the Kirkwood-Cohansey Aquifer in the New Jersey Coastal Plain
 Geochemical Processes Controlling Aluminum and Sulfate Transport in Acidic Surface, Ground and Soil Waters In a Watershed In the New Jersey Coastal Plain
 Geohydrology of Picatinny Arsenal in Morris County, New Jersey
 Geophysical and Water-Quality Reconnaissance of the Ciba-Geigy Superfund Site, Toms River, Ocean County, New Jersey
 Geophysical Characteristics of Aquifers in New Jersey
 Ground Water Data Collection Network
 Ground-Water Contamination by Light Chlorinated Hydrocarbons at Picatinny Arsenal, Morris County, New Jersey
 Ground-Water Flow and Water Quality, Newark Basin, New Jersey
 Ground-Water Quality and its Relationship to Geohydrology and Land Use in the Outcrop Area of the Potomac-Raritan-Magothy Aquifer System, Mercer and Middlesex Counties, New Jersey
 Ground-Water Quality of the Central Passaic River Basin, Northeastern, New Jersey
 Ground-Water Resources Investigation of the Rockaway River Buried Valley
 Ground-Water Resources of the Buried Valley and Carbonate Rock Systems of the Lamington River and the South Branch Raritan River Drainage Areas in Northern New Jersey
 Hydrologic Conditions in the Jacobs Creek, Stony Brook and Beden Brook Drainage Basins in West Central New Jersey, 1986-1988
 Hydrologic Conditions of the Upper Rockaway River Basin, New Jersey, 1984-1986
 Hydrologic Processes With Special Emphasis on Ground-Water Quality near Camden, New Jersey
 Hydrologic Processes With Special Emphasis on Ground-Water Quality near South River, New Jersey
 Hydrology of the Kirkwood-Cohansey Aquifer System in Metedeconk and Toms River Basin
 Interpretation of Water Quality Trends in New Jersey Streams, 1976-85
 Investigation of Naturally Occurring Radioactive Substances in Ground Water of the Triassic Formations in New Jersey
 Land Subsidence Related to Ground-Water Withdrawals in the Coastal Plain Aquifer of New Jersey
 Mobility, Transport and Fate of Naturally Occurring Radionuclides in Ground-Water Newark Basin, New Jersey
 Modeling and Experimental Investigation of Hydrocarbon Transport and Biodegradation in the Unsaturated Zone
 Natural Radioactivity in Ground-Water of the Kirkwood-Cohansey Aquifer System, Southern Coastal Plain, New Jersey
 Optimal Withdrawals from a Coastal Aquifer Subject to Salt-Water Encroachment: Numerical Analysis and Case Study
 Potential Effects of Climate Change on the Water Resources of the Delaware River Basin
 Preliminary Natural Resource Surveys of Superfund Sites in New Jersey
 Quality of Water Data Collection Network
 Regionalization of Low Flows for New Jersey Streams
 Removing Volatile Ground-Water Contaminants by Inducing Air-Phase Transport
 Somerset County Flood-Monitoring Network
 Spatial Analysis of Statewide Water-Quality Data
 Surface Water Data Collection Network
 Surfactant Sorption to Soil and its Effect on the Distribution of Anthropogenic Organic Compounds
 Water Levels in Major Artesian Aquifers of the New Jersey Coastal Plain and Surrounding Areas, 1989
 Water Resources and Saltwater Intrusion of the Holly Beach-Cohansey, Rio Grande, Atlantic City 800-Foot Sand, and Piney Point Aquifers, Cape May County
 Water Table, Hydrologic Properties and Ground-Water Quality of the Kirkwood-Cohansey Aquifer System, Gloucester County and Maurice River Basin North of Norma, New Jersey
 Water Use

WATER-RELATED REPORTS FOR NEW JERSEY COMPLETED BY THE GEOLOGICAL
SURVEY IN RECENT YEARS

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ACCESS TO WATSTORE DATA

The National Water Data Storage and Retrieval System (WATSTORE) was established in 1972 to provide an effective and efficient means for the processing and maintenance of water data collected through the activities of the U.S. Geological Survey. A variety of useful products ranging from data tables to complex statistical analyses such as Log Pearson Type III statistics can be produced using WATSTORE. The system resides on the central computer facilities of the U.S. Geological Survey at its National Center in Reston, Virginia and consists of related files and data bases.

- Station Header File - Contains descriptive information on over 440,000 sites throughout the United States and its territories where the U.S. Geological Survey collects or has collected data.
- Daily Values File - Contains over 220 million daily values of stream flows, stages, reservoir contents, water temperatures, specific conductances, sediment concentrations, sediment discharges, and ground-water levels.
- Peak Flow File - Contains approximately 500,000 maximum (peak) streamflow and gage height values at surface-water sites.
- Water Quality File - Contains approximately 2 million analyses of water samples that describe the chemical, physical, biological, and radiochemical characteristics of both surface and ground water.
- Ground-Water Site Inventory Data Base - Contains inventory data for over 900,000 wells, springs, and other sources of ground water. The data includes site location, geohydrologic characteristics, well-construction history, and one-time field measurements such as water temperature.

In 1976, the U.S. Geological Survey opened WATSTORE to the public for direct access. The signing of a Memorandum of Agreement with the Survey is required to obtain direct access to WATSTORE. The system can be accessed either synchronously or asynchronously. The requestor will be expected to pay all computer costs he/she incurs. Direct access may be obtained by contacting:

U.S. Geological Survey
National Water Data Exchange
421 USGS National Center
Reston, Virginia 22092

In addition to providing direct access to WATSTORE, the National Water Data Exchange (NAWDEX) services include data-search assistance, data dissemination, and data referrals. Data can be provided in various machine-readable formats on magnetic tape or 5-1/4 inch floppy disk. The request for water-data should be forwarded to the local Geological Survey District office:

District Chief
U.S. Geological Survey
Mountain View Office Park
810 Bear Tavern Road, Suite 206
West Trenton, New Jersey 08628

If the district office does not have the facility to fulfill the request, it will be referred to the National Water Data Exchange (NAWDEX) office in Reston, Virginia.

DEFINITION OF TERMS

Terms related to streamflow, water-quality, and other hydrologic data, as used in this report, are defined below. See also table for converting English units to International System (SI) Units on the inside of the back cover.

Acre-foot (AC-FT, acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic meters.

Adenosine triphosphate (ATP) is an organic, phosphate-rich, compound important in the transfer of energy in organisms. Its central role in living cells makes it an excellent indicator of the presence of living material in water. A measurement of ATP therefore provides a sensitive and rapid estimate of biomass. ATP is reported in micrograms per liter of the original water sample.

Algae are mostly aquatic single-celled, colonial, or multi-celled plants, containing chlorophyll and lacking roots, stems, and leaves.

Algal growth potential (AGP) is the maximum algal dry weight biomass that can be produced in a natural water sample under standardized laboratory conditions. The growth potential is the algal biomass present at stationary phase and is expressed as milligrams dry weight of algae produced per liter of sample.

Aquifer is a geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Aquifer codes and geologic names:

The following list shows the aquifer unit codes and geologic names of the formations in which the sampled wells are finished. The aquifer unit codes also appear in the ground-water quality and ground-water level tables.

112SFDF	Stratified drift
112HLBC	Holly Beach water-bearing zone
112CPMY	Cape May Formation, undifferentiated
112ESRNS	Cape May Formation, estuarine sand facies
121CNSY	Cohansey Sand
121CKKD	Kirkwood-Cohansey aquifer system
122KRKDU	Rio Grande water-bearing zone of the Kirkwood Formation
122KRKDL	Atlantic City 800-foot sand of the Kirkwood Formation
124PNPN	Piney Point aquifer
125VNCN	Vincentown Formation
211MLRW	Wenonah-Mount Laurel aquifer
211EGLS	Englishtown aquifer system
211MRPA	Potomac-Raritan-Magothy aquifer system, undifferentiated
211MRPAU	Upper aquifer, Potomac-Raritan-Magothy aquifer system
211MRPAM	Middle aquifer, Potomac-Raritan-Magothy aquifer system
211MRPAL	Lower aquifer, Potomac-Raritan-Magothy aquifer system
211ODBG	Old Bridge aquifer, Potomac-Raritan-Magothy aquifer system (Mercer, Middlesex, Monmouth Counties)
211FRNG	Farrington aquifer, Potomac-Raritan-Magothy aquifer system (Mercer, Middlesex, Monmouth Counties)
227BRCK	Brunswick Group, undifferentiated
227HKMN	Hook Mountain Basalt of Olsen (1980)
227PSSC	Passaic Formation of Olsen (1980)
230TRSC	Triassic System
231LCKG	Lockatong Formation
231SCKN	Stockton Formation
340DVNN	Devonian System
374LSVL	Leithsville Formation
400PCMB	Precambrian Erathem

Artesian means confined and is used to describe a well in which the water level stands above the top of the aquifer tapped by the well. A flowing artesian well is one in which the water level is above the land surface.

Bacteria are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, while others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse by plants.

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. This group includes coliforms that inhabit the intestine of warm-blooded animals and those that inhabit soils. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as all the organisms that produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35°C plus or minus 1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal coliform bacteria are bacteria that are present in the intestine or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms that produce blue colonies within 24 hours when incubated at 44.5°C plus or minus 0.2°C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal streptococcal bacteria are bacteria found also in the intestine of warm-blooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as Gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at 35°C plus or minus 1.0°C on KF-streptococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Bedload is the sediment which moves along in essentially continuous contact with the streambed by rolling, sliding, and making brief excursions into the flow a few diameters above the bed.

Bed material is the sediment mixture of which a streambed, lake, pond, reservoir, or estuary bottom is composed.

Benthic invertebrates are invertebrate animals inhabiting the bottoms of lakes, streams, and other water bodies. They are useful as indicators of water quality.

Biochemical oxygen demand (BOD) is a measure of the quantity of dissolved oxygen, in milligrams per liter, necessary for the decomposition of organic matter by micro-organisms, such as bacteria.

Biomass is the amount of living matter present at any given time, expressed as the mass per unit area or volume of habitat.

Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500°C for 1 hour. The ash mass values of zooplankton and phytoplankton are expressed in grams per cubic meter (g/m^3), and periphyton and benthic organisms in grams per square mile (g/m^2).

Dry mass refers to the mass of residue present after drying in an oven at 105°C for zooplankton and periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry-mass values are expressed in the same units as ash mass.

Organic mass or volatile mass of the living substance is the difference between the dry mass and ash mass and represents the actual mass of the living matter. The organic mass is expressed in the same units as for ash mass and dry mass.

Wet mass is the mass of living matter plus contained water.

Bottom material: See Bed material.

Cells/volume refers to the number of cells of any organism which is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample, usually milliliters (mL) or liters (L).

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, approximately 1.9835 acre-feet, about 646,000 gallons, or 2,447 cubic meters.

Chemical oxygen demand (COD) is a measure of the chemically oxidizable material in the water and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with BOD or with carbonaceous organic pollution from sewage or industrial wastes.

Chlorophyll refers to the green pigments of plants. Chlorophyll a and b are the two most common green pigments in plants.

Color unit is produced by one milligram per liter of platinum in the form of the chloroplatinate ion. Color is expressed in units of the platinum-cobalt scale.

Contents is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

Continuing-record station is a specified site which meets one or all conditions listed:

1. When chemical samples are collected daily or monthly for 10 or more months during the water year.
2. When water temperature records include observations taken one or more times daily.
3. When sediment discharge records include periods for which sediment loads are computed and are considered to be representative of the runoff for the water year.

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.

Control structure as used in this report is a structure on a stream or canal that is used to regulate the flow or stage of the stream or to prevent the intrusion of salt water.

Cubic foot per second (ft^3/s) 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 0.02832 cubic meters per second.

Data Collection Platform (DCP) is an electronic instrument which collects, processes, stores, and transmits data from various sensors to an earth-orbiting Geostationary Operational Environmental Satellite (GOES) and/or through landline telemetry.

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 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 μm 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 the filtrate.

Dissolved-solids concentration of water is determined either analytically by the "residue-on-evaporation" method, or mathematically by totaling the concentrations of individual constituents reported in a comprehensive chemical analysis. During the analytical determination of dissolved solids, the bicarbonate (generally a major dissolved component of water) is converted to carbonate. Therefore, in the mathematical calculation of dissolved-solids concentration, the bicarbonate value, in milligrams per liter, is multiplied by 0.492 to reflect the change.

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 specified.

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 (G.H.) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the more 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, canal, 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 computed as the sum of equivalents of polyvalent cations and is expressed as the equivalent concentration of calcium carbonate (CaCO₃).

High tide is the maximum height reached by each rising tide.

Hydrologic Bench-Mark Network is a network of 57 sites in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by the activities of man.

Hydrologic unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as delineated by the Office of Water Data Coordination on the State Hydrologic Unit Maps; each hydrologic unit is identified by an eight-digit number.

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

Low-tide is the minimum height reached by each falling tide.

Mean high or low tide is the average of all high or low tides, respectively, over a specified period.

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

Metamorphic stage refers to the stage of development that an organism exhibits during its transformation from an immature form to an adult form. This developmental process exists for most insects, and the degree of difference from the immature stage to the adult form varies from relatively slight to pronounced, with many intermediates. Examples of metamorphic stages of insects are egg-larva-adult or egg-nymph-adult.

Methylene blue active substances (MBAS) are apparent detergents. The determination depends on the formation of a blue color when methylene blue dye reacts with synthetic anionic detergent compounds.

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

Micrograms per liter ($\mu\text{g/L}$, $\mu\text{g/L}$) is a unit expressing the concentration of chemical constituents in solution as mass (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

Milligrams per liter (MG/L , mg/L) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter represents the mass of solute per unit volume (liter) of water. Concentration of suspended sediment also is expressed in mg/L and is based on the mass of dry sediment per liter of water-sediment mixture.

Multiple-plate samplers are artificial substrates of known surface area used for obtaining benthic-invertebrate samples. They consist of a series of spaced, hardboard plates on an eyebolt.

National Geodetic Vertical Datum of 1929 (NGVD of 1929) 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.

National Stream Quality Accounting Network (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in natural or regional water-quality planning and management. The 500 or so sites in NASQAN are generally located at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey Office of Water Data Coordination in consultation with the Water Resources Council. The objectives of NASQAN are (1) to obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting such that the data may be used for, (2) description of the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (3) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics, and (4) providing a nationally consistent data base useful for water-quality assessment and hydrologic research.

National Trends Network (NTN) is a 150-station network for sampling atmospheric deposition in the United States. The purpose of the network is to determine the variability, both in location and in time, of the composition of atmospheric deposition, which includes snow, rain, dust particles, aerosols, and gases. The core from which the NTN was built was the already-existing deposition-monitoring network of the National Deposition Program (NADP).

NJ-WRD well number is a hyphenated, 6-digit identification number which the U.S. Geological Survey assigned to all New Jersey wells in the Ground Water Site Inventory (GWSI) data base. This numbering system was developed in 1978 to simplify identification of wells. The first two digits are a code for the county in which the well is located, and the last four digits are a sequence number. Each well added to GWSI is assigned the next higher sequence number for the county in which the well is located. These NJ-WRD well numbers are being used now in the ground-water level descriptions, wells sampled for water-quality analyses, and on the corresponding location maps in these reports.

Open or screened interval is the length of unscreened opening or of well screen through which water enters a well, in feet below land surface.

Organism is any living entity.

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per area habitat, usually square meter (m^2), acre, or hectare. Periphyton, benthic organisms, and macrophytes are expressed in these terms.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually milliliter (mL) or liter (L). Numbers of planktonic organisms can be expressed in these terms.

Total organism count is the total number of organisms collected and enumerated in any particular sample.

Parameter Code is a 5-digit number used in the U.S. Geological Survey computerized data system, WATSTORE, to uniquely identify a specific constituent. The codes used in WATSTORE are the same as those used in the U.S. Environmental Protection Agency data system, STORET. The Environmental Protection Agency assigns and approves all requests for new codes.

Partial-record station is a particular site where limited streamflow and/or water-quality data are collected systematically over a period of years for use in hydrologic analyses.

Particle size is the diameter, in millimeters (mm), of a particle determined by either sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

Particle-size classification used in this report agrees with the recommendation made by the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

<u>Classification</u>	<u>Size (mm)</u>	<u>Method of analysis</u>
Clay.....	0.00024 - 0.004	Sedimentation
Silt.....	.004 - .062	Sedimentation
Sand.....	.062 - 2.0	Sedimentation or sieve
Gravel.....	2.0 - 64.0	Sieve

The partial-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic matter is removed, and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native-water analysis.

Percent composition is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population, in terms of types, numbers, mass, or volume.

Periphyton is the assemblage of microorganisms attached to and living upon submerged solid surfaces. While primarily consisting of algae, they also include bacteria, fungi, protozoa, rotifers, and other small organisms.

Pesticides are chemical compounds used to control undesirable organisms. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides.

Picocurie (PC, pCi) is one trillionth (1×10^{-12}) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields 3.7×10^{10} radioactive disintegrations per second. A picocurie yields 2.22 dpm (disintegrations per minute).

Plankton is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers.

Phytoplankton is the plant part of the plankton. They are usually microscopic and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment and are commonly known as algae.

Blue-green algae are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water.

Diatoms are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample.

Green algae have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algae mats or floating "moss" in lakes. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample.

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column and are often large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers.

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

Primary productivity is a measure of the rate at which new organic matter is formed and accumulated through photosynthetic and chemosynthetic activity of producer organisms (chiefly, green plants). The rate of primary production is estimated by measuring the amount of oxygen released (oxygen method) or the amount of carbon assimilated by the plants (carbon method).

Milligrams of carbon per area or volume per unit time [$\text{mg C}/(\text{m}^2/\text{time})$] for periphyton and macrophytes and [$\text{mg C}/(\text{m}^3/\text{time})$] for phytoplankton are units for expressing primary productivity. They define the amount of carbon dioxide consumed as measured by radioactive carbon (carbon 14). The carbon 14 method is of greater sensitivity than the oxygen light and dark bottle method and is preferred for use in unenriched waters. Unit time may be either the hour or day, depending on the incubation period.

Milligrams of oxygen per area or volume per unit time [$\text{mg O}_2/(\text{m}^2/\text{time})$] for periphyton and macrophytes and [$\text{mg O}_2/(\text{m}^3/\text{time})$] for phytoplankton are the units for expressing primary productivity. They define production and respiration rates as estimated from changes in the measured dissolved-oxygen concentration. The oxygen light and dark bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made within 24 hours. Unit time may be either the hour or day, depending on the incubation period.

Radiochemical program is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

Recoverable from bottom material is the amount of a given constituent that is in solution after a representative sample of bottom material has been digested by a method (usually using an acid or mixture of acids) that results in dissolution of readily soluble substances. Complete dissolution of all bottom material is not achieved by the digestion treatment and thus the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Return period is the average time interval between occurrences of a hydrological event of a given or greater magnitude, usually expressed in years. May also be called recurrence interval.

River mile as used herein, is the distance above the mouth of Delaware Bay, measured along the center line of the navigation channel or the main stem of the Delaware River. River mile data were furnished by the Delaware River Basin Commission.

Runoff in inches (IN., 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.

Screened interval is the length of well screen through which water enters a well, in feet below land surface.

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.

Bed load is the sediment that is transported in a stream by rolling, sliding, or skipping along the bed and very close to it. In this report, bed load is considered to consist of particles in transit within 0.25 ft of the streambed.

Bed load discharge (tons per day) is the quantity of bed load measured by dry weight that moves past a section as bed load in a given time.

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.

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 ft above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L).

Mean concentration is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour day.

Suspended-sediment discharge (tons/day) is the rate at which dry mass of sediment passes a section of a stream or is the quantity of sediment, as measured by dry mass or volume, that passes a section in a given time. It is calculated in units of tons per day as follows: concentration (mg/L) x discharge (ft^3/s) x 0.0027.

Suspended-sediment load is a general term that refers to material in suspension. It is not synonymous with either discharge or concentration.

Total sediment discharge (tons/day) is the sum of the suspended-sediment discharge and the bed-load discharge. It is the total quantity of sediment, as measured by dry mass or volume, that passes a section during a given time.

Total-sediment load or total load is a term which refers to the total sediment (bed load plus suspended-sediment load) that is in transport. It is not synonymous with total-sediment discharge.

7-day 10-year low flow (MA7CD10) is the discharge at the 10-year recurrence interval taken from a frequency curve of annual values of the lowest mean discharge for 7 consecutive days (the 7-day low flow).

Sodium-adsorption-ratio (SAR) is the expression of relative activity of sodium ions in exchange reactions within soil and is an index of sodium or alkali hazard to the soil. Waters range in respect to sodium hazard from those which can be used for irrigation on almost all soils to those which are generally unsatisfactory for irrigation.

Solute is any substance that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electrical current. It is expressed in microsiemens per centimeter at 25°C. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is from 55 to 75 percent of the specific conductance (in microsiemens). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

Stage-discharge relation is the relation between gage height (stage) and 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 the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff" as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Substrate is the physical surface upon which an organism lives.

Natural substrate refers to any naturally occurring emerged or submersed solid surface, such as a rock or tree, upon which an organism lives.

Artificial substrate is a device which is purposely placed in a stream or lake for colonization or organisms. The artificial substrate simplifies the community structure by standardizing the substrate from which each sample is taken. Examples of artificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multiplate samplers (made of hardboard) for benthic organism collection, and plexiglass strips for periphyton collection.

Surface area of a lake is that area outlined on the latest U.S.G.S. topographic map as the boundary of the lake and measured by a planimeter in acres. In localities not covered by topographic maps, the areas are computed from the best maps available at the time planimetered. All areas shown are those for the stage when the planimetered map was made.

Surficial bed material is the part (0.1 to 0.2 ft) of the bed material that is sampled using U.S. Series Bed-Material Samplers.

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

Suspended, recoverable is the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that is retained on a 0.45 um membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Determinations of "suspended, recoverable" constituents are made either by analyzing portions of the 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 um membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as "suspended, total."

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

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchical scheme beginning with Kingdom and ending with Species at the base. The higher the classification level, the fewer features the organisms have in common. For example, the taxonomy of a particular mayfly, Hexagenia limbata, is the following:

Kingdom.....	Animal
Phylum.....	Arthropoda
Class.....	Insecta
Order.....	Ephemeroptera
Family.....	Ephemeridae
Genus.....	Hexagenia
Species.....	Hexagenia limbata

Thermograph is an instrument that continuously records variations of temperature on a chart. The more general term "temperature recorder" is used in the table headings and refers to any instrument that records temperature whether on a chart, a tape, or any other medium.

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the year.

Tons per acre-foot indicates the dry mass of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration of the constituent, in milligrams per liter, by 0.00136.

Tons per day (T/DAY) is the quantity of a substance in solution or suspension that passes a stream section during a 24-hour period.

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. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in both the dissolved and suspended phases of the sample. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total." (Note that the word "total" does double duty here, indicating both that the sample consists of a water-suspended sediment mixture and that the analytical method determined all of the constituent in the sample.)

Total discharge is the total quantity of any individual constituent, as measured by dry mass or volume, that passes through a stream cross-section per unit of time. This term needs to be qualified, such as "total sediment discharge," "total chloride discharge," and so on.

Total, recoverable is the amount of a given constituent that is 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 the digestion treatment, and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the dissolved and suspended phases of the sample. To achieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Tritium Network is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States.

Water table is that surface in an unconfined ground-water body at which the pressure is atmospheric.

Water year in Geological Survey reports dealing with surface-water supply is the 12-month period October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 1985, is called the "1985 water year."

WDR is used as an abbreviation for "Water-Data Report" in the REVISED RECORDS paragraph to refer to State annual hydrologic-data reports (WRD was used as an abbreviation for "Water-Resources Data" in reports published prior to 1976).

Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

WSP is used as an abbreviation for "Water-Supply Paper" in reference to previously published reports.

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- Witkowski, P.J., Smith, J.A., Fusillo, T.V., and Chiou, C.T., 1987, A review of surface-water sediment fractions and their interactions with persistent anthropogenic organic compounds: U.S. Geological Survey Circular 993, 39 p.
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PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

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

The reports listed below are for sale by the U.S. Geological Survey, Books and Open-File Reports Section, Federal Center, Box 25425, Denver, Colorado 80225 (authorized agent of the Superintendent of Documents, Government Printing Office). Prepayment is required. Remittance should be sent by check or money order payable to the U.S. Geological Survey. Prices are not included because they are subject to change. Current prices can be obtained by writing to the above address. When ordering or inquiring about prices for any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations."

- 1-D1. *Water temperature--influential factors, field measurement, and data presentation*, by H. H. Stevens, Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 pages.
- 1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W. W. Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages.
- 2-D1. *Application of surface geophysics to ground-water investigations*, by A. A. R. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages.
- 2-D2. *Application of seismic-refraction techniques to hydrologic studies*, by F. P. Haeni: USGS--TWRI Book 2, Chapter D2. 1988. 86 pages.
- 2-E1. *Application of borehole geophysics to water-resources investigations*, by W. S. Keys and L. M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages.
- 2-F1. *Application of drilling, coring, and sampling techniques to test holes and wells*, by Eugene Shuter and Warren E. Teasdale: USGS--TWRI Book 2, Chapter F1. 1989. 97 pages.
- 3-A1. *General field and office procedures for indirect discharge measurements*, by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages.
- 3-A2. *Measurement of peak discharge by the slope-area method*, by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages.
- 3-A3. *Measurement of peak discharge at culverts by indirect methods*, by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages.
- 3-A4. *Measurement of peak discharge at width contractions by indirect methods*, by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 pages.
- 3-A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 pages.
- 3-A6. *General procedure for gaging streams*, by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 pages.
- 3-A7. *Stage measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 pages.
- 3-A8. *Discharge measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages.
- 3-A9. *Measurement of time of travel in streams by dye tracing*, by F. A. Kilpatrick and J. F. Wilson, Jr.: USGS--TWRI Book 3, Chapter A9. 1989. 27 pages.
- 3-A10. *Discharge ratings at gaging stations*, by E. J. Kennedy: USGS--TWRI Book 3, Chapter A10. 1984. 59 pages.
- 3-A11. *Measurement of discharge by moving-boat method*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages.
- 3-A12. *Fluorometric procedures for dye tracing*, by J. F. Wilson, Jr., E. D. Cobb, and F. A. Kilpatrick: USGS--TWRI Book 3, Chapter A12. 1986. 41 pages.
- 3-A13. *Computation of continuous records of streamflow*, by E. J. Kennedy: USGS--TWRI Book 3, Chapter A13. 1983. 53 pages.
- 3-A14. *Use of flumes in measuring discharge*, by F. A. Kilpatrick and V. R. Schneider: USGS--TWRI Book 3, Chapter A14. 1983. 46 pages.
- 3-A15. *Computation of water-surface profiles in open channels*, by Jacob Davidian: USGS--TWRI Book 3, Chapter A15. 1984. 48 pages.
- 3-A16. *Measurement of discharge using tracers*, by F. A. Kilpatrick and E. D. Cobb: USGS--TWRI Book 3, Chapter A16. 1985. 52 pages.
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- 3-A18. *Determination of stream reaeration coefficients by use of tracers*, by F. A. Kilpatrick, R. E. Rathbun, N. Yotsukura, G. W. Parker, and L. L. DeLong: USGS--TWRI Book 3, Chapter A18. 1989. 52 pages.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS--Continued

- 3-B1. *Aquifer-test design, observation, and data analysis*, by R. W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pages.
- 3-B2. *Introduction to ground-water hydraulics, a programmed text for self-instruction*, by G. D. Bennett: USGS--TWRI Book 3, Chapter B2. 1976. 172 pages.
- 3-B3. *Type curves for selected problems of flow to wells in confined aquifers*, by J. E. Reed: USGS--TWRI Book 3, Chapter B3. 1980. 106 pages.
- 3-B5. *Definition of boundary and initial conditions in the analysis of saturated ground-water flow systems--An introduction*, by O. L. Franke, T. E. Reilly, and G. D. Bennett: USGS--TWRI Book 3, Chapter B5. 1987. 15 pages.
- 3-B6. *The principle of superposition and its application in ground-water hydraulics*, by T. E. Reilly, O. L. Franke, and G. D. Bennett: USGS--TWRI Book 3, Chapter B6. 1987. 28 pages.
- 3-C1. *Fluvial sediment concepts*, by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages.
- 3-C2. *Field methods for measurement of fluvial sediment*, by H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2. 1970. 59 pages.
- 3-C3. *Computation of fluvial-sediment discharge*, by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 pages.
- 4-A1. *Some statistical tools in hydrology*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 pages.
- 4-A2. *Frequency curves*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 pages.
- 4-B1. *Low-flow investigations*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972. 18 pages.
- 4-B2. *Storage analyses for water supply*, by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages.
- 4-B3. *Regional analyses of streamflow characteristics*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 pages.
- 4-D1. *Computation of rate and volume of stream depletion by wells*, by C. T. Jenkins: USGS--TWRI Book 4, Chapter D1. 1970. 17 pages.
- 5-A1. *Methods for determination of inorganic substances in water and fluvial sediments*, by M. J. Fishman and L. C. Friedman: USGS--TWRI Book 5, Chapter A1. 1989. 545 pages.
- 5-A2. *Determination of minor elements in water by emission spectroscopy*, by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages.
- 5-A3. *Methods for the determination of organic substances in water and fluvial sediments*, edited by R. L. Wershaw, M. J. Fishman, R. R. Grabbe, and L. E. Lowe: USGS--TWRI Book 5, Chapter A3. 1987. 80 pages.
- 5-A4. *Methods for collection and analysis of aquatic biological and microbiological samples*, by L. J. Britton and P. E. Greeson, editors: USGS--TWRI Book 5, Chapter A4. 1989. 363 pages.
- 5-A5. *Methods for determination of radioactive substances in water and fluvial sediments*, by L. L. Thatcher, V. J. Janzer, and K. W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 pages.
- 5-A6. *Quality assurance practices for the chemical and biological analyses of water and fluvial sediments*, by L. C. Friedman and D. E. Erdmann: USGS--TWRI Book 5, Chapter A6. 1982. 181 pages.
- 5-C1. *Laboratory theory and methods for sediment analysis*, by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages.
- 6-A1. *A modular three-dimensional finite-difference ground-water flow model*, by M. G. McDonald and A. W. Harbaugh: USGS--TWRI Book 6, Chapter A1. 1988. 586 pages.
- 7-C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments*, by P. C. Trescott, G. F. Pinder, and S. P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages.
- 7-C2. *Computer model of two-dimensional solute transport and dispersion in ground water*, by L. F. Konikow and J. D. Bredehoeft: USGS--TWRI Book 7, Chapter C2. 1978. 90 pages.
- 7-C3. *A model for simulation of flow in singular and interconnected channels*, by R. W. Schaffranek, R. A. Baltzer, and D. E. Goldberg: USGS--TWRI Book 7, Chapter C3. 1981. 110 pages.
- 8-A1. *Methods of measuring water levels in deep wells*, by M. S. Garber and F. C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages.
- 8-A2. *Installation and service manual for U.S. Geological Survey manometers*, by J. D. Craig: USGS--TWRI Book 8, Chapter A2. 1983. 57 pages.
- 8-B2. *Calibration and maintenance of vertical-axis type current meters*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 pages.

DISCONTINUED GAGING STATIONS

The following continuous-record streamflow stations in New Jersey have been discontinued or converted to partial-record stations. Daily streamflow records were collected and published for the period of record shown for each station.

Station number	Station name	Drainage area (sq mi)	Period of record (water years)
01368000	Wallkill River near Unionville, NY	140	1938-81
01368720	Auxiliary outlet of Upper Greenwood Lake at Moe, NJ	-----	1968-80a
01378690	Passaic River near Bernardsville, NJ	8.83	1968-77
01379630	Russia Brook tributary at Milton, NJ	2.51	1969-71
01384000	Wanaque River at Monks, NJ	40.4	1935-85
01385000	Cupsaw Brook near Wanaque, NJ	4.37	1935-58
01385500	Erskine Brook near Wanaque, NJ	1.14	1934-38
01386000	West Brook near Wanaque, NJ	11.8	1935-78
01386500	Blue Mine Brook near Wanaque, NJ	1.01	1935-58
01389800	Passaic River at Paterson, NJ	785	1897-1955
01392000	Weasel Brook at Clifton, NJ	4.45	1937-62
01392500	Second River at Belleville, NJ	11.6	1938-64
01393000	Elizabeth River at Irvington, NJ	2.90	1931-38
01393500	Elizabeth River at Elizabeth, NJ	20.2	1922-73
01393800	East Fork East Branch Rahway River at West Orange, NJ	.83	1972-74
01394000	West Branch Rahway River at Millburn, NJ	7.10	1940-50
01395500	Robinsons Branch Rahway River at Goodmans, NJ	12.7	1921-24
01397500	Walnut Brook near Flemington, NJ	2.24	1936-61
01398045	Back Brook tributary near Ringoes, NJ		1977-88
01399000	North Branch Raritan River at Pluckimans, NJ	52.0	1903-06
01399190	Lamington (Black) River at Succasunna, NJ	7.37	1976-87
01399200	Lamington (Black) River near Ironia, NJ	10.9	1975-87
01399525	Axle Brook near Pottersville, NJ		1977-88
01399690	South Branch Rockaway Creek at Whitehouse, NJ	13.2	1964-67
01399830	North Branch Raritan River at North Branch, NJ	174	1977-81
01400932	Baldwin Creek at Baldwin Lake, near Pennington, NJ	2.52	1963-70
01400953	Honey Branch near Pennington, NJ	.70	1967-75
01401500	Millstone River near Kingston, NJ	171	1934-49
01402590	Royce Brook tributary at Frankfort, NJ	.29	1969-74
01403000	Raritan River at Bound Brook, NJ	779	1903-09, 1945-66
01403500	Green Brook at Plainfield, NJ	9.75	1938-84
01403900	Bound Brook at Middlesex, NJ	48.4	1972-77
01404000	Bound Brook at Bound Brook, NJ	49.0	1923-30
01404500	Lawrence Brook at Patricks Corner, NJ	29.0	1922-26
01405300	Matchaponix Brook at Spotswood, NJ	43.9	1957-67
01405500	South River at Old Bridge, NJ		1939-88
01406000	Deep Run near Browntown, NJ	8.07	1932-40
01406500	Tennent Brook near Browntown, NJ	5.25	1932-41
01407000	Matawan Creek at Matawan, NJ	6.11	1932-55
01408140	South Branch Metedeconk River at Lakewood, NJ	26.0	1973-76
01409000	Cedar Creek at Lanoka Harbor, NJ	55.3	1933-58, 1971
01409095	Oyster Creek near Brookville, NJ	7.43	1965-84
01409280	Westcunk Creek at Stafford Forge, NJ		1939-88
01410500	Absecon Creek at Absecon, NJ	17.9	1946-85
01410787	Great Egg Harbor River tributary at Sicklerville, NJ	1.64	1972-79
01410810	Fourmile Branch at New Brooklyn, NJ	7.74	1973-79
01410820	Great Egg Harbor River near Blue Anchor, NJ	37.3	1972-79
01412000	Menantico Creek near Millville, NJ	23.2	1931-57, 1978-85
01412500	WB Cohansey River at Seeley, NJ	2.58	1951-67
01413000	Loper Run near Bridgeton, NJ	2.34	1937-59
01444000	Paulins Kill at Columbia, NJ	179	1908-09
01445000	Pequest River at Huntsville, NJ	31.0	1940-62
01445430	Pequest River at Townsburys, NJ	92.5	1977-80
01446000	Beaver Brook near Belvidere, NJ	36.7	1923-61
01455160	Brass Castle Creek near Washington, NJ	2.34	1970-83
01455200	Pohatcong Creek at New Village, NJ	33.3	1960-70
01455355	Beaver Brook near Weldon, NJ	1.72	1969-71
01455500	Musconetcong River at outlet of Lake Hopatcong, NJ	25.3	1961-75
01456000	Musconetcong River near Hackettstown, NJ	68.9	1922-74
01457500	Delaware River at Riegelsville, NJ	6328	1906-71
01462000	Delaware River at Lambertville, NJ	6680	1898-1906
01463587	New Sharon Run at Carsons Mills, NJ	6.63	1976-77
01463620	Assumpink Creek near Clarksville, NJ	34.3	1972-82
01463657	Shipetaukin Creek tributary at Lawrenceville, NJ	.78	1976-77
01463690	Little Shabakunk Creek at Bakersville, NJ	3.98	1976-77
01464525	Thornton Creek at Bordentown, NJ	.84	1976-77
01465850	South Branch Rancocas Creek at Vincentown, NJ	64.5	1961-75
01466000	Middle Branch Mount Misery Brook in Lebanon State Forest, NJ	2.82	1953-65, 1977
01467019	Mill Creek near Willingboro, NJ	4.12	1975-78
01467021	Mill Creek at Levitt Parkway, at Willingboro, NJ	9.12	1975-77

DISCONTINUED GAGING STATIONS--Continued

Station number	Station name	Drainage area (sq mi)	Period of record (water years)
01476600	Still Run near Mickleton, NJ	3.98	1957-66
01477500	Oldmans Creek near Woodstown, NJ	18.5	1932-40
01482500	Salem River at Woodstown, NJ	14.6	1940, 1941-85
01483000	Alloway Creek at Alloway, NJ	20.3	1953-72

a Not published, on file at U.S. Geological Survey, West Trenton, NJ

DISCONTINUED CONTINUOUS WATER-QUALITY STATIONS

The following stations were discontinued as continuous water-quality stations prior to the 1987 water year. Daily records of temperature, specific conductance, pH, dissolved oxygen or sediment were collected and published for the period of record shown for each station.

Station number	Station name	Drainage area (sq mi)	Type of record	Period of record (water years)
01379500	Passaic River near Chatham, NJ	100	Sed.	1964-68
01379773	Green Pond Brook at Picatinny Arsenal, NJ		Temp., S.C., pH, D.O.	1984-86
01382000	Passaic River at Two Bridges, NJ	361	Temp., S.C., pH, D.O.	1969-74
01387500	Ramapo River near Mahwah, NJ	118	Sed.	1964-65
01389000	Pompton River near Two Bridges, NJ	372	Temp., S.C., pH, D.O.	1969-74
01389500	Passaic River at Little Falls, NJ	762	Sed.	1964-65
			Temp., S.C.	1981-86
01396500	South Branch Raritan River near High Bridge, NJ	65.3	Temp.	1961-79
			S.C.	1969-79
01397000	South Branch Raritan River at Stanton, NJ	147	Temp., S.C.	1969-79
			Sed.	1960-63
01399690	South Branch Rockaway Creek at Whitehouse, NJ	13.2	Temp., S.C.	1977-78
			Sed.	1977
01399700	Rockaway Creek at Whitehouse, NJ	37.1	Temp., S.C.	1977-78
01400510	Raritan River near Manville, NJ	497	Temp., S.C., pH, D.O.	1968-74
01400932	Baldwin Creek at Baldwin Lake, near Pennington, NJ	2.52	Temp.	1963-66
			Sed.	1963-69
01401000	Stony Brook at Princeton, NJ	44.5	Sed.	1959-70
01402900	Millstone River near Manville, NJ	287	Temp., S.C., pH, D.O.	1968-74
01404100	Raritan River near South Bound Brook, NJ	862	Temp., S.C., pH, D.O.	1969-77
01408000	Manasquan River at Squankum, NJ	44	Temp., S.C., pH, D.O.	1969-74
01408500	Toms River near Toms River, NJ	123	Temp., S.C.	1964-66, 1975-81
			S.C.	1975-81
01409095	Oyster Creek near Brookville, NJ	7.43	Temp., D.O.	1975-76
			S.C., pH	1975-77
01409810	West Branch Wading River near Jenkins, NJ	84.1	Temp., S.C.	1978-81
01410787	Great Egg Harbor River trib. at Sicklerville, NJ	1.64	Sed.	1974-78
01410810	Fourmile Branch at New Brooklyn, NJ	7.74	Sed.	1974-78
01411000	Great Egg Harbor River at Folsom, NJ	57.1	Temp.	1961-80
01411500	Maurice River at Norma, NJ	112	Temp., S.C.	1980-86
01440200	Delaware River near Delaware Water Gap, Pa.	3850	Sed.	1964-65, 1972
01442750	Delaware River at Dunnfield, NJ	4150	Sed.	1966-76
01463500	Delaware River at Trenton, NJ	6780	Sed.	1949-82
01464040	Delaware River at Marine Terminal, at Trenton, NJ	6870	Temp., S.C.	1973-76
01464500	Crosswicks Creek near Extonville, NJ	81.5	Sed.	1965-70
01467016	Rancocas Creek at Willingboro, NJ	315	Temp., S.C., pH	1969-74
			D.O.	1970-72
			pH	1970-74
01467150	Cooper River at Haddonfield, NJ	17.0	Sed.	1968-69
01477120	Raccoon Creek near Swedesboro, NJ	26.9	Temp.	1966-73
			Sed.	1966-69

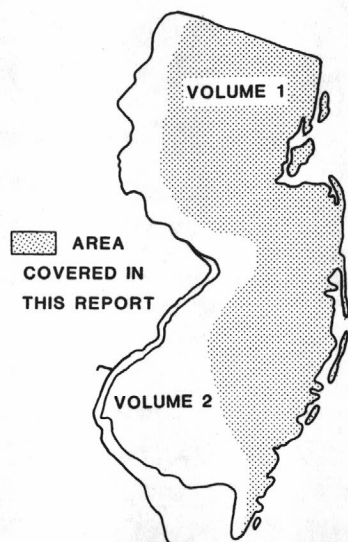
Type of record: Temp. (temperature), S.C. (specific conductance), pH (pH), D.O. (dissolved oxygen), Sed. (sediment).

WATER RESOURCES DATA-NEW JERSEY, 1989

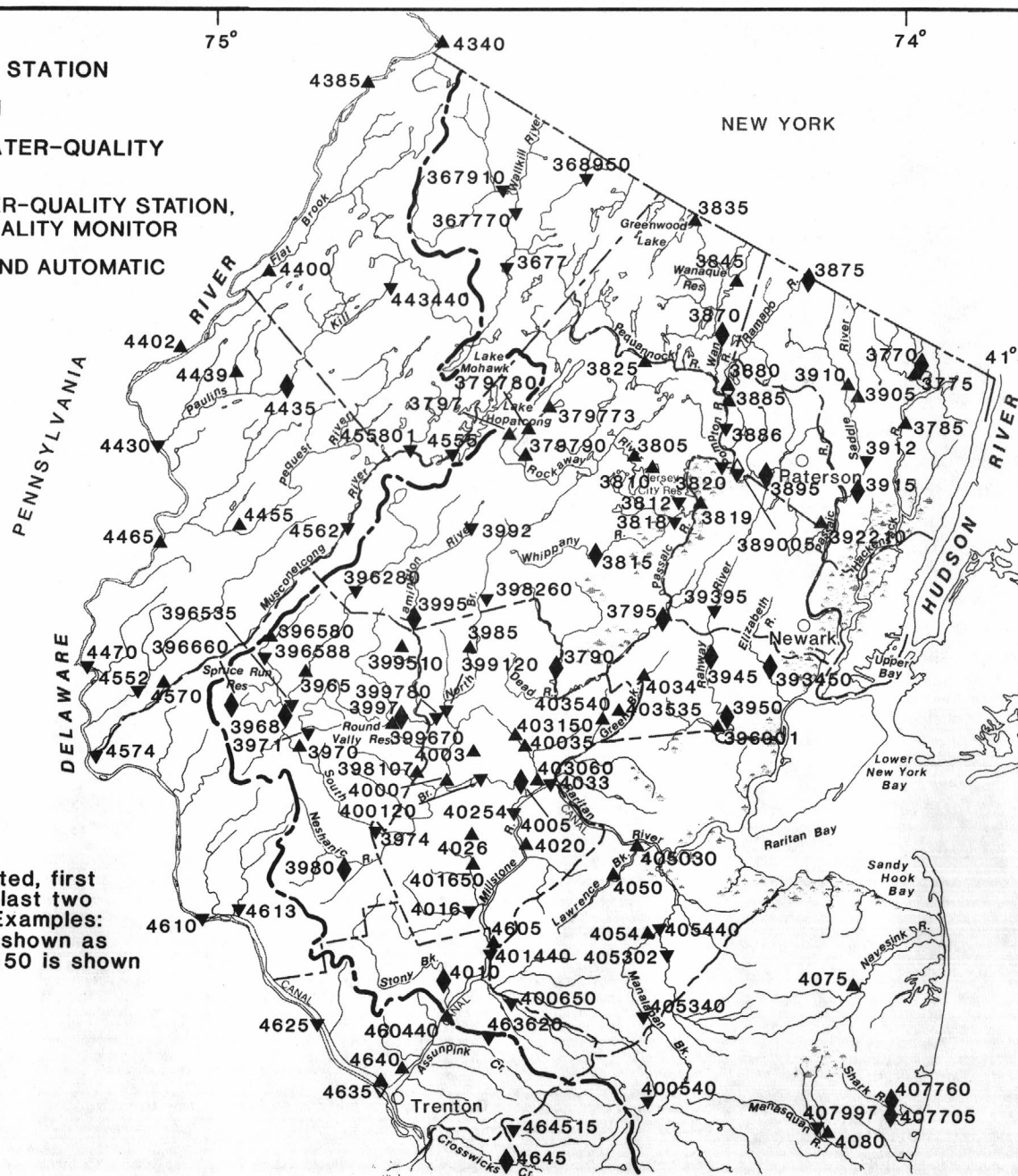
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EXPLANATION

- ▲3775 SURFACE-WATER GAGING STATION
- ▼4645 WATER-QUALITY STATION
- ◆3980 SURFACE-WATER AND WATER-QUALITY STATION
- ◆3880 SURFACE-WATER AND WATER-QUALITY STATION, AND AUTOMATIC WATER-QUALITY MONITOR
- ◆389005 WATER-QUALITY STATION AND AUTOMATIC WATER-QUALITY MONITOR



Note: Station numbers are abbreviated, first two digits (part number) and last two digits (if zeros) are omitted. Examples: Station number 01400500 is shown as 4005; Station number 01403150 is shown as 403150.



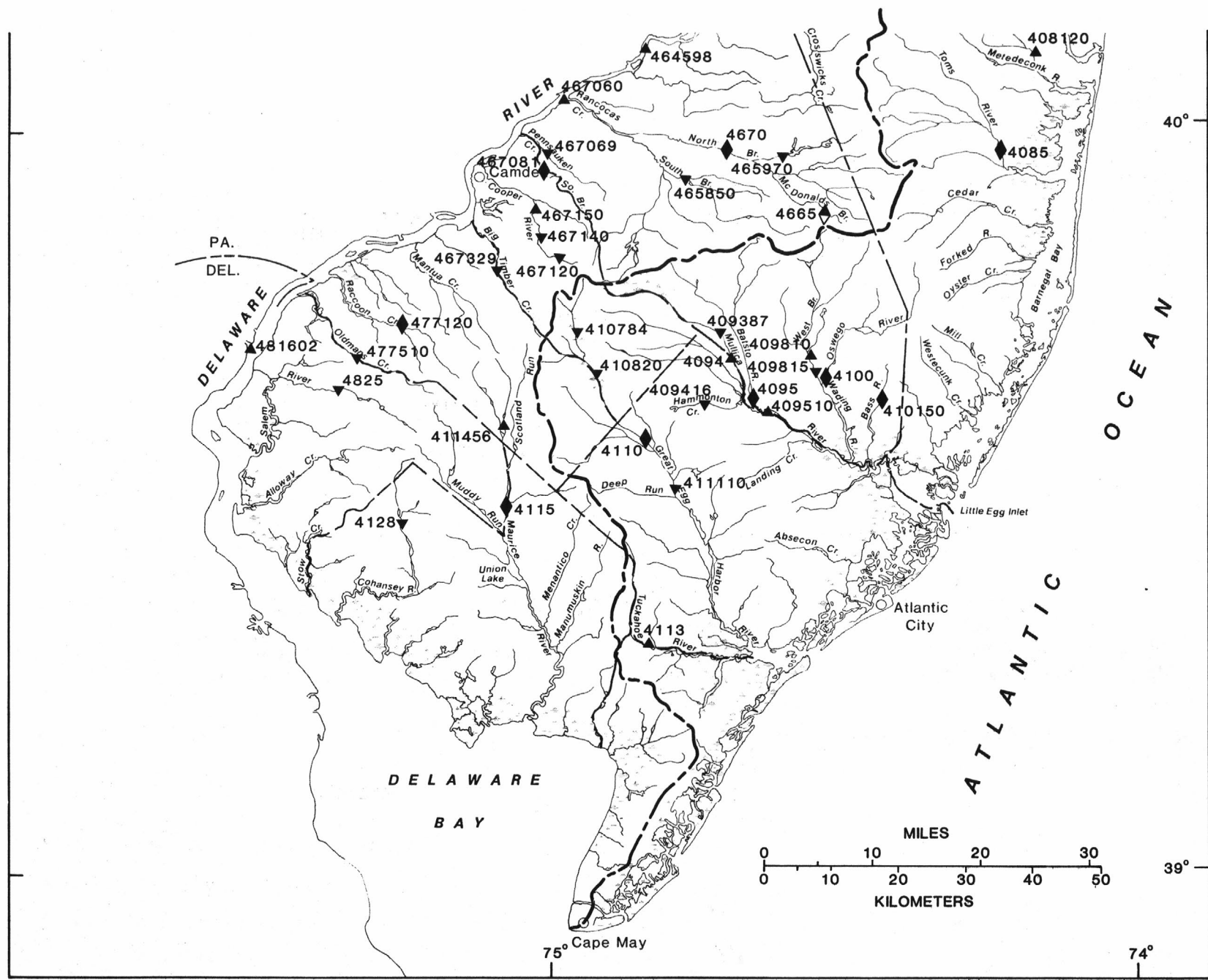
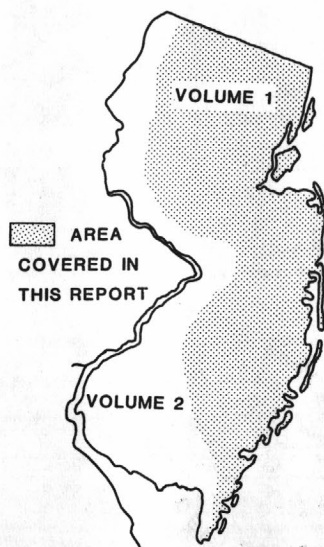


Figure 11.--Map showing location of gaging stations and surface-water quality stations.

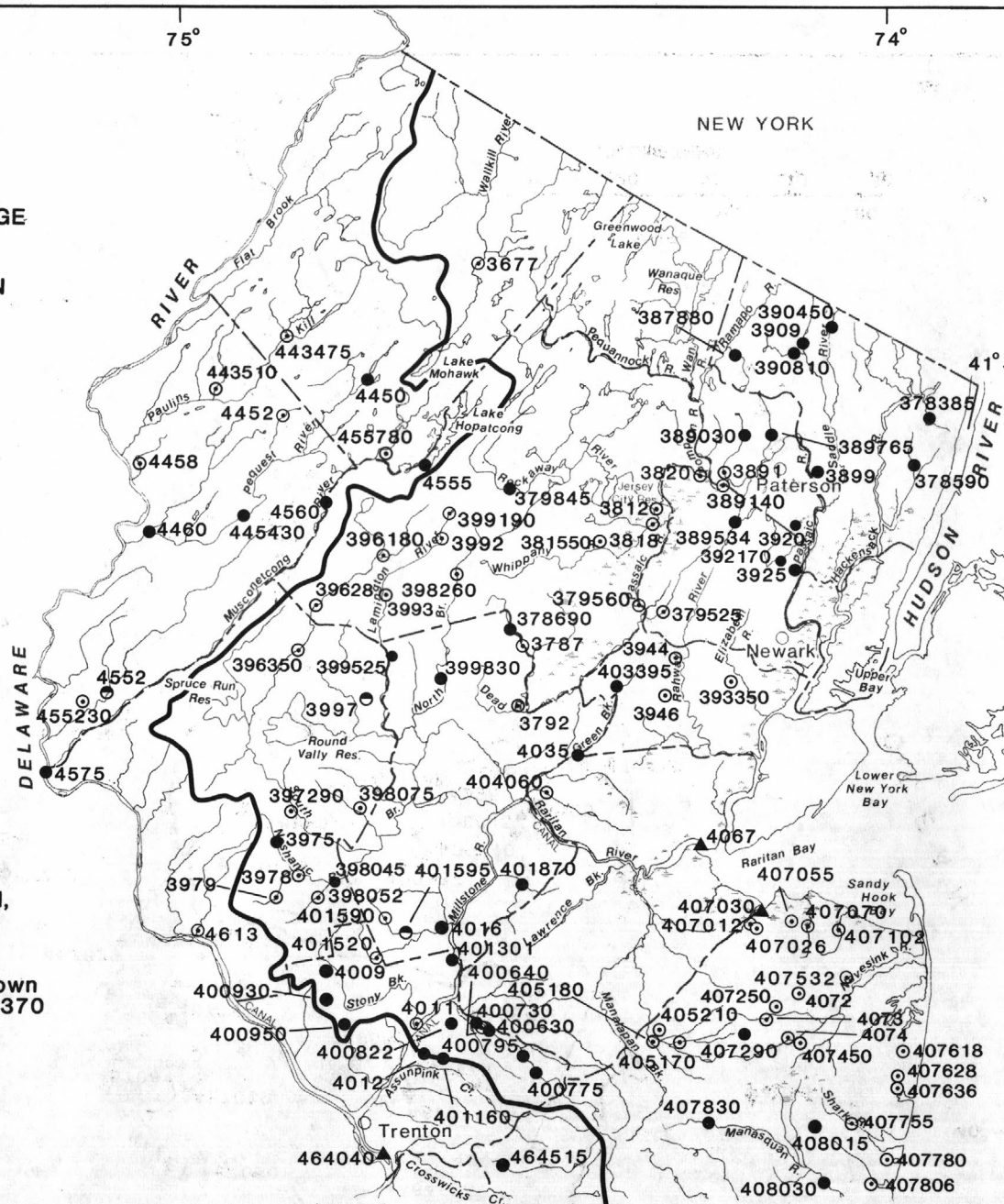
WATER RESOURCES DATA-NEW JERSEY, 1989

EXPLANATION

- 4117 LOW-FLOW STATION
- 4575 CREST-STAGE STATION
- 4628 LOW-FLOW AND CREST-STAGE STATION
- ▲4082 TIDAL CREST-STAGE STATION



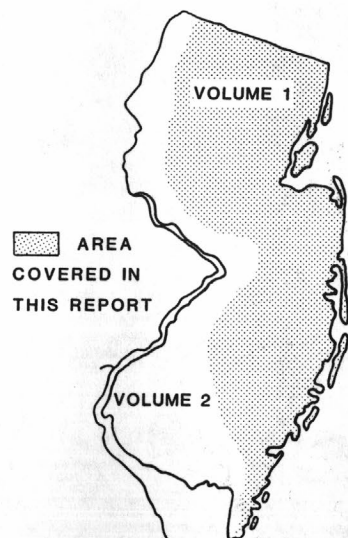
Note: Station numbers are abbreviated, first two digits (part number) and last two digits (if zeros) are omitted. Examples: Station number 01482100 is shown as 4821; Station number 01455370 is shown as 455370



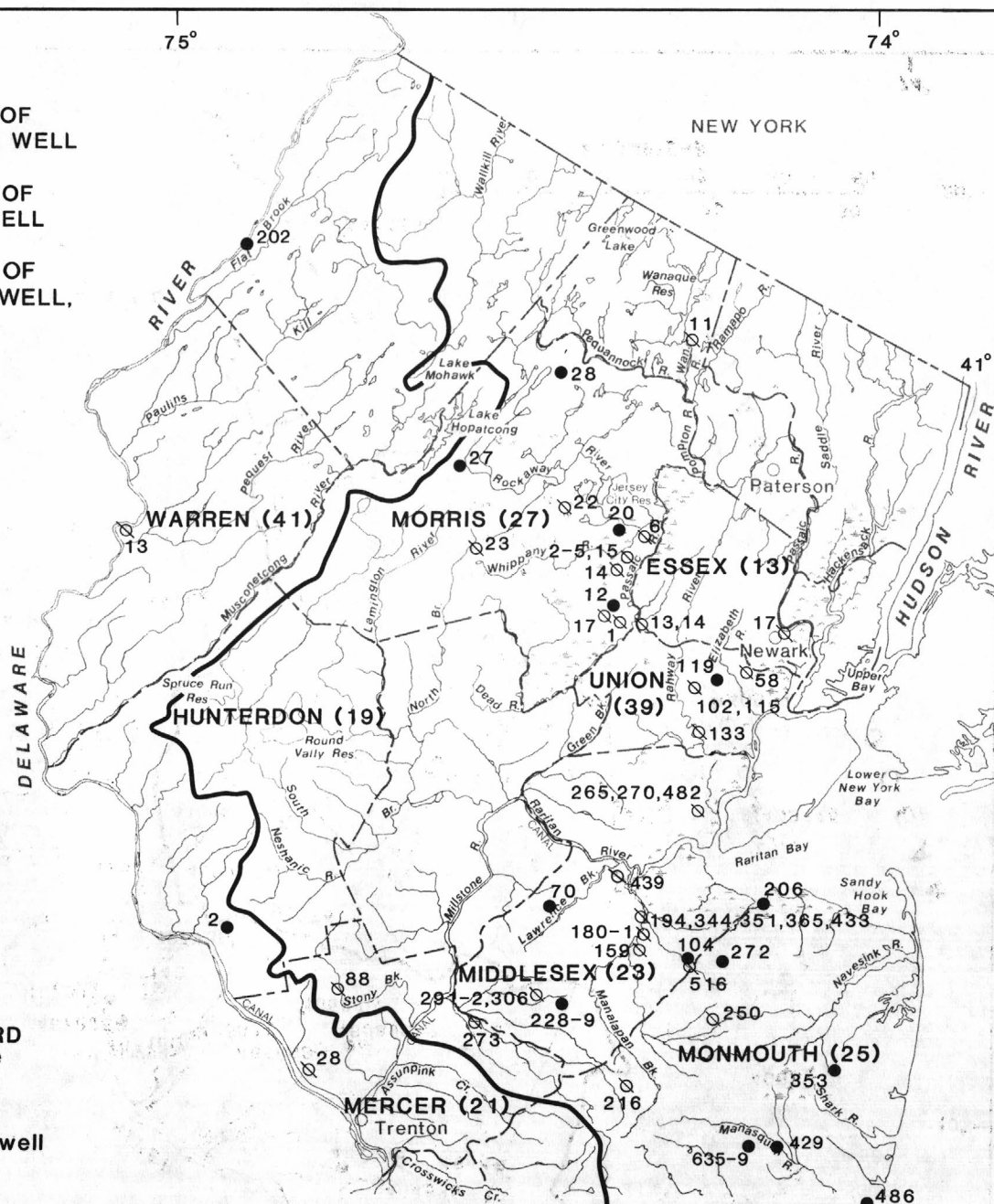
WATER RESOURCES DATA-NEW JERSEY, 1989

EXPLANATION

- ²⁰ LOCATION AND WELL NUMBER OF WATER-LEVEL OBSERVATION WELL
- ¹⁷ LOCATION AND WELL NUMBER OF SECONDARY OBSERVATION WELL
- ⁸¹¹ LOCATION AND WELL NUMBER OF WATER-TABLE OBSERVATION WELL, GLOUCESTER COUNTY



Note: The well numbers with county prefixes constitute the NJ-WRD well number for each well. The county codes are given in parentheses with the county names. Example: NJ-WRD well number 05-0570 is shown as well 570 in county 05.



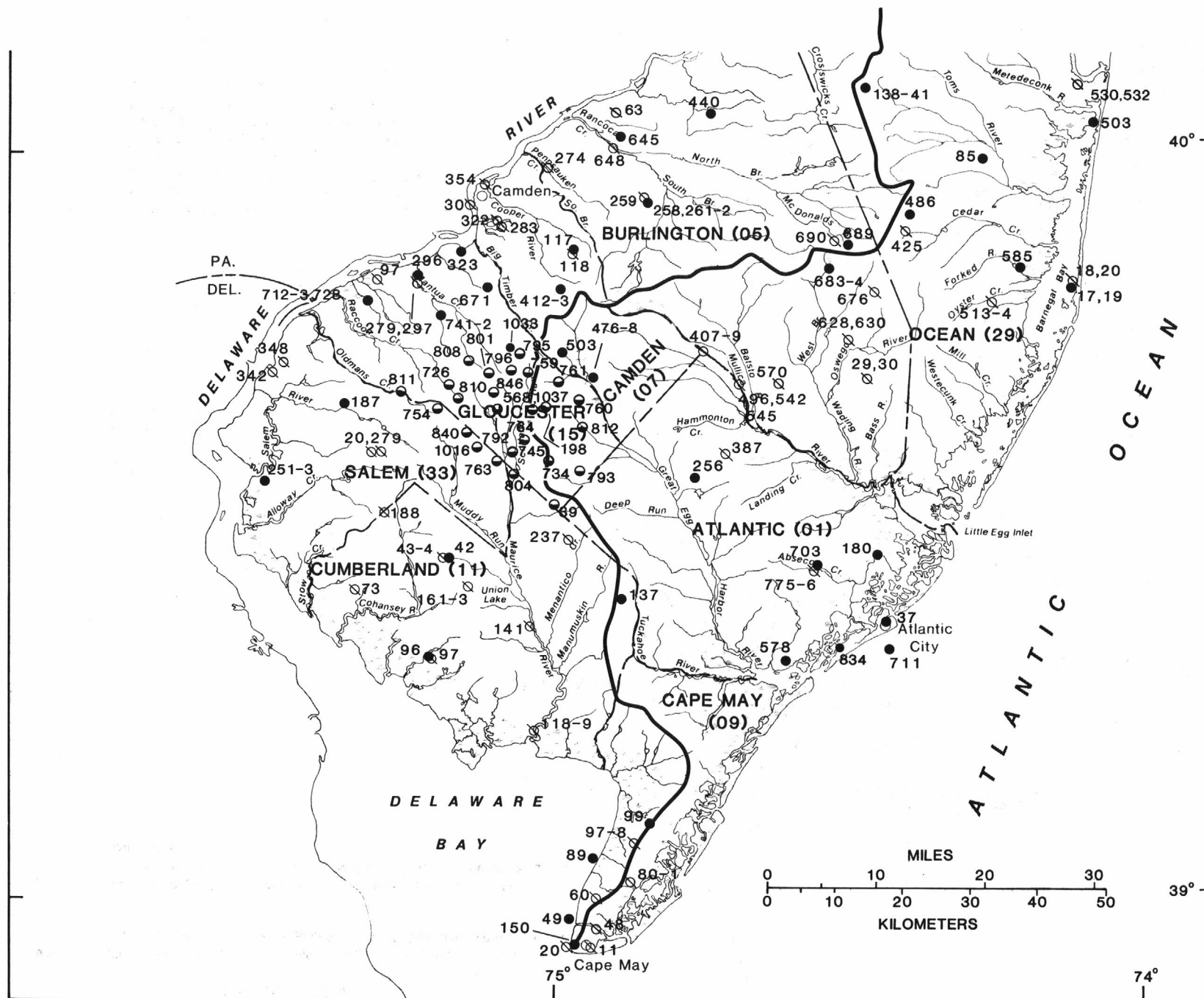
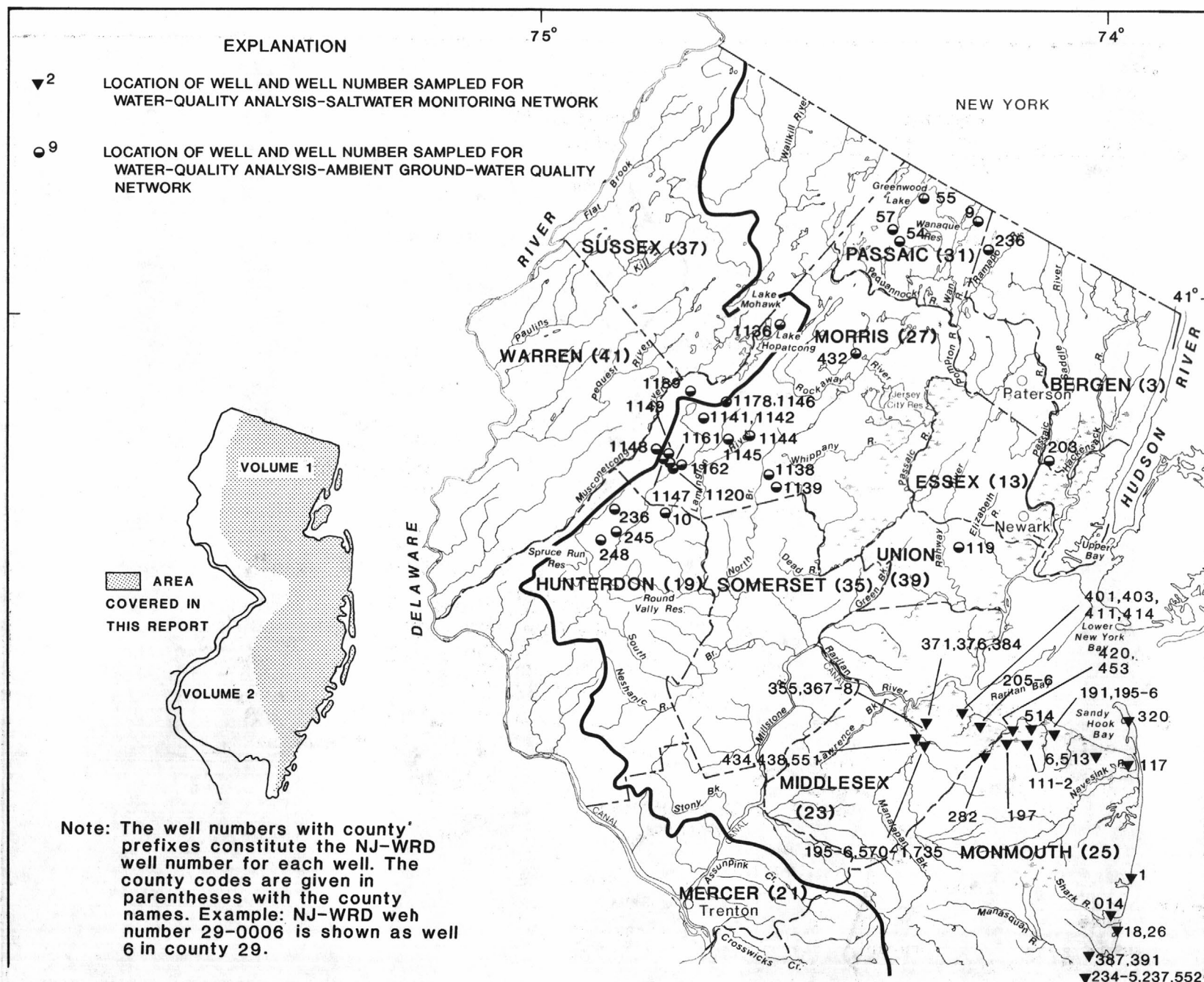


Figure 13.--Map showing location of ground-water observation well.

WATER RESOURCES DATA-NEW JERSEY, 1989



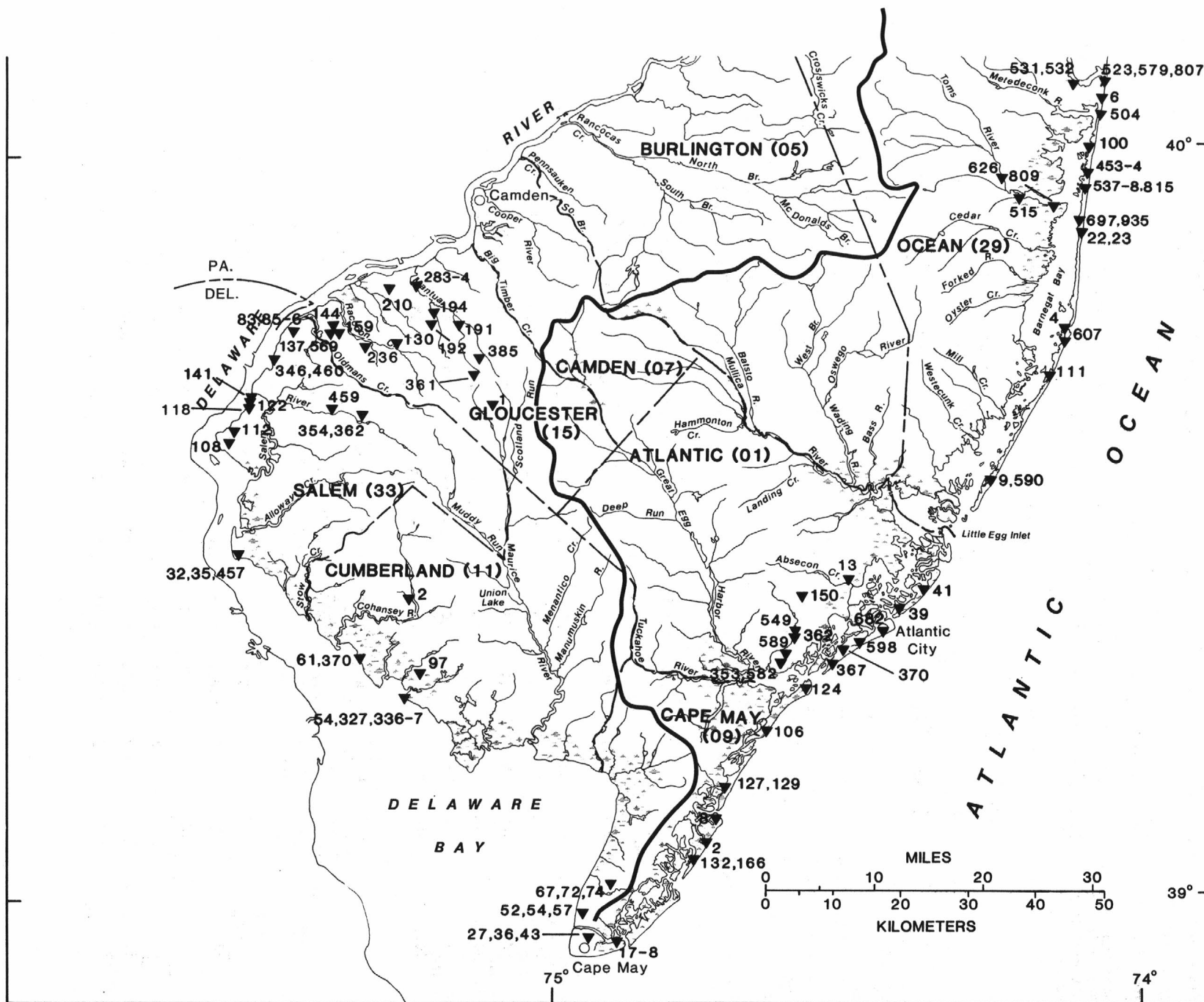


Figure 14.--Map showing location of ground-water quality stations.

HYDROLOGIC-DATA STATION RECORDS

HUDSON RIVER BASIN

01367700 WALLKILL RIVER AT FRANKLIN, NJ

LOCATION.--Lat 41°06'43", long 74°35'21", Sussex County, Hydrologic Unit 02020007, at bridge 120 ft downstream from dam at outlet of Franklin Pond in Franklin, and 0.8 mi upstream from Wildcat Brook.

DRAINAGE AREA.--29.4 mi².

PERIOD OF RECORD.--Water years 1959-63, 1976 to current year.

COOPERATION.--Field data and samples for laboratory analyses provided by New Jersey Department of Environmental Protection, Division of Water Resources. Analyses of fecal coliform and fecal streptococci by the MPM method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION)	OXYGEN DEMAND, BIO-CHEMICAL, 5 DAY (MG/L)	COLIFORM, FECAL, EC BROTH (MPN)	STREPTOCOCCI FECAL (MPN)
OCT 1988 12...	1300	4.7E	574	8.0	10.0	11.0	100	<0.8	<20	49
FEB 1989 28...	0930	34E	160	8.0	2.0	12.6	93	E2.0	40	12
APR 12...	1230	53E	340	7.9	8.0	13.1	112	E1.3	<20	33
JUN 20...	1200	84E	410	8.1	16.0	7.8	80	2.4	330	170
JUL 31...	1330	13E	410	7.3	21.5	8.3	95	E2.2	20	49
AUG 14...	1200	37E	504	7.8	19.5	8.6	95	E1.3	790	220

DATE	HARDNESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS Cl)	FLUORIDE, DIS-SOLVED (MG/L AS F)
OCT 1988 12...	190	42	21	37	2.2	149	20	73	0.1
FEB 1989 28...	45	12	3.7	10	2.0	25	19	16	0.1
APR 12...	100	25	9.9	25	0.9	73	17	48	0.1
JUN 20...	110	29	10	25	1.1	87	14	40	0.1
JUL 31...	160	36	16	30	1.3	132	2.0	57	0.1
AUG 14...	160	39	16	29	1.4	135	15	53	0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	PHOSPHOROUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988 12...	4.8	289	0.014	0.30	0.07	0.49	0.79	--	4.2
FEB 1989 28...	4.3	82	0.014	1.08	0.43	1.0	2.1	0.23	5.2
APR 12...	5.2	175	0.006	0.27	0.09	0.28	0.55	0.10	3.6
JUN 20...	6.3	178	0.008	0.45	0.15	1.1	1.5	--	5.8
JUL 31...	5.2	227	0.032	0.38	0.05	0.60	0.98	0.07	4.8
AUG 14...	7.9	242	0.015	0.37	0.05	0.44	0.81	0.04	5.1

01367700 WALLKILL RIVER AT FRANKLIN, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	NITRO- GEN, NH4 + ORG. TOT IN BOT MAT (MG/KG AS N)	CARBON, INOR- GANIC, TOT IN BOT MAT (G/KG AS C)	CARBON, INORG + ORGANIC TOT. IN BOT MAT (GM/KG AS C)	ARSENIC TOTAL IN BOT- TOM MA- TERIAL (UG/G AS AS)	CADMIUM RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CD)	CHRO- MIUM, RECOV. FM BOT- TOM MA- TERIAL (UG/G)	COBALT, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CO)	COPPER, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CU)	IRON, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS FE)	
OCT 1988 12...	1300	250	33	39	17	2	10	<50	10	6300	
DATE		LEAD, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS PB)	MANGA- NESE, RECOV. FM BOT- TOM MA- TERIAL (UG/G)	MERCURY RECOV. FM BOT- TOM MA- TERIAL (UG/G AS HG)	NICKEL, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS NI)	SELE- NIUM, TOTAL IN BOT- TOM MA- TERIAL (UG/G)	ZINC, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS ZN)	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PCN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
OCT 1988 12...	100	1600	0.02	10	<1	780	13	<1.0	<0.1	5.0	
DATE		DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- AZINON, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDO- SULFAN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ETHION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)
OCT 1988 12...	0.1	<0.1	0.3	<0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	0.3
DATE		LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	MALA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA- THION, TOT. IN BOTTOM MATL. (UG/KG)	METHYL TRI- THION, TOT. IN BOTTOM MATL. (UG/KG)	MIREX, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PARA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PER- THANE IN BOT- TOM MA- TERIAL (UG/KG)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TRI- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
OCT 1988 12...	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.00	<10	<0.1

HUDSON RIVER BASIN

01367770 WALLKILL RIVER NEAR SUSSEX, NJ

LOCATION.--41°11'38", long 74°34'32", Sussex County, Hydrologic Unit 02020007, at bridge on Glenwood Road, 0.8 mi upstream of Papakating Creek, 1.7 mi southwest of Independence Corner, 2.0 mi southeast of Sussex, and 2.1 mi northwest of McAfee.

DRAINAGE AREA.--60.8 mi².

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

COOPERATION.--Field data and samples for laboratory analyses provided by New Jersey Department of Environmental Protection, Division of Water Resources. Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988 12...	1140	16E	547	7.8	8.0	11.3	97	E1.2	490	130
FEB 1989 28...	1100	60E	120	8.0	1.5	12.4	90	E1.2	20	<2
APR 12...	1030	94E	420	7.0	7.0	13.0	107	E1.7	20	13
JUN 20...	1020	130E	510	7.6	15.5	8.5	86	3.6	2400	350
JUL 31...	1200	34E	380	7.5	19.0	7.8	85	E1.8	1700	1600
AUG 29...	1200	26E	580	7.8	19.5	8.0	89	E1.7	1100	350

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988 12...	250	52	28	32	2.8	199	27	59	0.1
FEB 1989 28...	34	9.0	2.8	7.4	1.4	19	15	11	0.1
APR 12...	150	36	15	23	1.3	117	22	43	0.1
JUN 20...	170	42	17	21	1.5	147	15	34	0.1
JUL 31...	220	50	24	27	2.4	190	21	50	0.1
AUG 29...	240	54	26	34	3.6	196	23	63	0.2

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988 12...	7.0	327	0.011	1.49	<0.05	0.54	2.0	--	3.8
FEB 1989 28...	3.2	61	0.010	0.84	0.36	0.68	1.5	0.17	3.6
APR 12...	5.4	216	0.009	0.72	0.06	0.47	1.2	0.11	3.3
JUN 20...	7.9	227	0.014	0.66	0.18	1.4	2.1	--	7.7
JUL 31...	7.9	296	0.025	2.34	0.16	0.43	2.8	0.10	3.4
AUG 29...	8.0	329	0.014	3.75	0.10	0.82	4.6	0.10	3.5

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

HUDSON RIVER BASIN

01367910 PAPA KATING CREEK AT SUSSEX, NJ

LOCATION.--41°12'02", long 74°35'59", Sussex County, Hydrologic Unit 02020007, at bridge on State Route 23 in Sussex, 0.7 mi downstream from Clove Brook, 2.6 mi southwest of Independence Corner, and 3.4 mi northwest of McAfee.

DRAINAGE AREA.--59.4 mi².

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

COOPERATION.--Field data and samples for Laboratory analyses provided by New Jersey Department of Environmental Protection, Division of Water Resources. Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988 25...	1315	18E	351	7.4	7.5	9.8	84	E1.9	16000	130
FEB 1989 16...	1100	30E	240	7.5	0.5	14.0	97	4.4	1300	920
APR 03...	1300	125E	240	7.0	7.0	9.4	79	E1.6	3500	79
JUN 14...	1300	100E	255	7.5	15.0	5.4	54	2.4	490	>2400
JUL 06...	1330	57E	260	7.6	20.0	7.8	87	E2.3	>24000	>2400
AUG 16...	1200	20E	319	7.3	22.0	6.5	76	E1.9	1700	540

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988 25...	120	38	6.2	18	3.5	73	37	37	0.1
FEB 1989 16...	88	28	4.5	19	3.0	47	29	36	0.1
APR 03...	71	22	3.8	15	1.6	39	25	26	<0.1
JUN 14...	83	26	4.4	12	1.5	52	14	24	0.1
JUL 06...	82	26	4.1	13	2.2	63	15	20	0.1
AUG 16...	110	36	5.3	17	2.1	79	21	26	0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988 25...	7.1	191	0.025	0.48	0.31	0.85	1.3	--	5.5
FEB 1989 16...	5.4	153	0.013	1.18	0.33	0.91	2.1	0.10	6.3
APR 03...	4.8	122	0.007	0.70	0.09	0.50	1.2	0.06	9.2
JUN 14...	7.8	121	0.016	2.41	0.09	0.76	3.2	0.14	8.4
JUL 06...	8.1	126	0.035	0.80	0.15	1.2	2.0	0.14	7.2
AUG 16...	7.2	162	0.070	1.10	0.17	0.71	1.8	0.14	5.5

01367910 PAKATING CREEK AT SUSSEX, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SULFIDE TOTAL (MG/L AS S)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE)	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)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1988 25...	1315	<0.5	20	<1	<10	60	<1	1	5

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	PHENOLS TOTAL (UG/L)
OCT 1988 25...	370	<5	80	<0.10	<1	<1	10	<1

HUDSON RIVER BASIN

01368950 BLACK CREEK NEAR VERNON, NJ

LOCATION.--Lat 41°13'21", long 74°28'33", Sussex County, Hydrologic Unit 02020007, at bridge on Maple Grange road, 0.6 mi upstream of confluence with Wawayanda Creek, 0.7 mi northwest of Maple Grange, and 1.7 mi northeast of Vernon.

DRAINAGE AREA.--17.3 mi².

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

COOPERATION.--Field data and samples for Laboratory analyses provided by New Jersey Department of Environmental Protection Division of Water Resources. Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988 25...	1115	7.6E	650	7.6	7.5	10.5	90	E1.9	1700	920
FEB 1989 16...	1330	12E	650	7.8	3.0	13.9	103	2.4	170	540
APR 03...	1130	32E	404	7.6	7.5	10.8	92	E1.3	110	13
JUN 14...	1100	43E	500	7.3	15.5	5.2	53	5.0	490	350
JUL 06...	1115	31E	520	7.4	19.5	4.6	51	E1.6	16000	>2400
AUG 22...	1200	9.0E	482	7.7	21.0	6.6	75	<0.5	490	920

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988 25...	260	59	28	35	2.4	205	32	72	0.1
FEB 1989 16...	250	56	26	36	2.0	197	25	74	0.1
APR 03...	200	46	21	25	1.3	165	22	47	0.1
JUN 14...	200	49	20	25	1.5	183	13	47	0.2
JUL 06...	200	47	21	26	1.9	178	14	44	0.1
AUG 22...	210	52	20	14	1.2	193	14	26	0.2

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOROUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988 25...	8.4	360	0.010	0.58	<0.05	0.59	1.2	0.03	6.3
FEB 1989 16...	6.8	344	0.015	1.14	0.21	0.59	1.7	0.04	4.8
APR 03...	6.9	268	0.008	0.68	<0.05	0.44	1.1	0.04	4.0
JUN 14...	7.9	273	0.021	0.59	0.13	0.87	1.5	0.09	7.5
JUL 06...	9.3	270	0.023	0.49	0.13	0.99	1.5	0.09	7.1
AUG 22...	11	254	0.024	0.41	0.07	0.78	1.2	0.10	6.8

01368950 BLACK CREEK NEAR VERNON, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SULFIDE TOTAL (MG/L AS S)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE)	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)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1988 25...	1115	<0.5	<10	<1	<10	30	<1	1	3
JUN 1989 14...	1100	<0.5	10	1	<10	<10	<1	<1	2

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	PHENOLS TOTAL (UG/L)
OCT 1988 25...	300	<5	70	<0.10	<1	<1	10	1
JUN 1989 14...	750	1	160	<0.10	1	<1	<10	2

HACKENSACK RIVER BASIN

01376800 HACKENSACK RIVER AT WEST NYACK, NY

LOCATION---Lat 41°05'44", long 73°57'52", Rockland County, Hydrologic Unit 02030103, on right bank 20 ft downstream from Penn Central Transportation Co. railroad bridge at West Nyack, 1,000 ft upstream from State Highway 59, and 1.0 mi downstream from DeForest Lake.

DRAINAGE AREA---29.4 mi².

PERIOD OF RECORD---December 1958 to current year.

GAGE---Water-stage recorder, stop-log control, and crest-stage gage. Datum of gage is 53.50 ft above National Geodetic Vertical Datum of 1929 (levels by Hackensack Water Co.).

REMARKS---No estimated daily discharges. Records fair. Flow regulated by DeForest Lake (see Reservoirs in Hackensack River Basin). Diversion from gaging station pool for municipal supply for village of Nyack (see Diversions in Hackensack River Basin). Discharge given for this station represents the flow of Hackensack River downstream from this diversion. Several measurements of water temperature were made during the year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	34	88	19	16	16	24	22	48	25	21	18
2	26	26	88	19	16	17	16	99	45	18	19	19
3	27	19	83	18	17	17	18	116	39	17	19	19
4	25	20	81	19	17	17	19	83	33	19	17	19
5	28	32	59	18	17	17	32	75	29	46	17	18
6	33	31	28	18	17	22	40	436	30	71	17	19
7	34	24	22	18	17	18	25	170	46	55	18	19
8	39	21	17	20	17	17	21	101	79	43	17	19
9	35	19	19	19	17	18	19	87	92	28	17	17
10	35	19	16	18	17	17	19	136	217	22	17	18
11	34	19	17	18	16	17	17	419	102	25	24	19
12	34	19	16	22	17	17	18	152	72	19	47	19
13	34	30	17	23	17	17	19	107	89	19	88	18
14	34	24	18	17	20	17	20	94	86	19	74	22
15	38	18	18	26	21	17	25	86	107	17	68	22
16	39	21	17	19	23	18	57	317	194	18	72	19
17	38	33	16	16	18	18	51	897	198	24	70	20
18	37	25	16	16	17	20	59	290	102	19	49	18
19	37	22	17	17	17	20	62	136	82	18	38	35
20	37	98	16	17	17	18	52	111	67	21	39	119
21	37	61	16	16	53	24	46	105	70	22	30	93
22	48	23	16	16	33	19	46	99	66	28	24	80
23	38	23	17	17	19	18	34	89	54	25	20	105
24	36	23	25	16	16	36	28	207	66	20	19	120
25	37	23	22	16	16	43	26	146	57	18	17	77
26	37	22	17	17	17	19	20	99	53	18	17	90
27	38	22	18	19	17	18	21	92	83	17	17	84
28	35	103	21	17	17	20	19	84	65	19	18	60
29	21	104	21	16	---	19	16	67	52	18	18	43
30	19	91	20	18	---	23	26	56	34	18	18	33
31	19	---	19	17	---	33	---	52	---	23	17	---
MEAN	33.6	35.0	28.4	18.1	19.2	20.2	29.8	162	78.6	24.8	31.1	42.7
MAX	48	104	88	26	53	43	62	897	217	71	88	120
MIN	19	18	16	16	16	16	16	22	29	17	17	17

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	30.9	31.4	37.9	41.8	52.1	68.1	75.6	55.0	36.2	35.0	27.7	36.4
MEAN	30.9	31.4	37.9	41.8	52.1	68.1	75.6	55.0	36.2	35.0	27.7	36.4
MAX	81.4	88.6	121	125	152	151	204	162	162	127	83.3	100
(WY)	1976	1976	1973	1978	1973	1961	1983	1989	1972	1984	1966	1975
MIN	7.27	7.59	5.63	8.95	10.3	6.95	9.61	7.04	12.7	11.6	12.3	9.34
(WY)	1967	1967	1967	1967	1967	1981	1966	1965	1981	1977	1981	1962

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	43.8	43.9
HIGHEST ANNUAL MEAN		74.1
LOWEST ANNUAL MEAN		13.4
HIGHEST DAILY MEAN	897	1320
LOWEST DAILY MEAN	16	2.6
INSTANTANEOUS PEAK FLOW	1130	1550a
INSTANTANEOUS PEAK STAGE	9.69	10.52b
	May 17	May 30 1984
	Dec 10	Jun 12 1965
	May 17	Feb 3 1973
		Feb 3 1973

a From rating curve extended above 840 ft³/s

b From floodmarks

01377000 HACKENSACK RIVER AT RIVERVALE, NJ

LOCATION.--Lat 40°59'55", long 73°59'27", Bergen County, Hydrologic Unit 02030103, on upstream right bank at bridge on Westwood Avenue in Rivervale, 1.5 mi upstream from Pascack Brook, 4.6 mi upstream from Oradell Dam, and 27.2 mi upstream from mouth.

DRAINAGE AREA.--58.0 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1941 to current year.

REVISED RECORDS.--WDR-NJ-80-1: 1968-79(M).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 22.51 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Flow regulated by De Forest Lake (since Feb. 1956) and Lake Tappan (since 1965), see Hackensack River basin, reservoirs in. Diversions from De Forest Lake and West Nyack, NY, for municipal water supply (see Hackensack River basin, diversions). Water occasionally diverted from Oradell Reservoir to Lake Tappan. Several measurements of water temperature, other than those published, were made during the year.

COOPERATION.--Gage-height record collected in cooperation with Hackensack Water Co.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	51	33	76	87	37	54	49	85	61	89	103
2	58	53	31	76	86	37	40	179	79	50	87	124
3	63	38	31	77	87	37	41	234	71	45	92	125
4	59	38	31	90	86	37	41	148	62	42	87	123
5	58	40	31	103	86	38	53	133	55	109	87	123
6	60	48	31	107	86	41	69	475	53	146	85	130
7	81	33	31	101	86	38	46	562	60	113	85	138
8	90	32	31	104	89	38	44	186	105	89	86	137
9	83	30	31	98	94	38	42	145	152	66	84	136
10	77	30	31	82	82	38	40	184	471	62	84	136
11	69	30	31	80	66	37	39	484	233	81	93	136
12	68	29	30	88	59	37	39	423	136	55	126	134
13	68	43	30	91	45	37	39	207	213	48	133	137
14	68	37	30	82	50	37	40	161	179	45	85	147
15	69	31	31	95	51	37	47	143	218	42	115	98
16	78	30	30	85	51	36	133	e310	451	41	160	89
17	90	51	30	65	38	36	113	e2030	372	55	180	91
18	80	35	30	39	38	47	102	1130	229	45	124	86
19	66	32	51	39	37	42	97	317	149	43	92	109
20	66	123	90	39	37	37	86	193	119	56	80	190
21	64	86	100	37	87	44	77	171	128	68	70	91
22	71	36	97	60	59	38	73	155	118	52	64	45
23	38	32	94	88	44	37	62	143	102	53	53	53
24	38	31	93	88	40	64	55	318	115	48	48	44
25	38	30	83	88	38	69	49	350	102	44	43	40
26	38	30	60	88	38	39	46	190	92	41	41	58
27	37	30	39	89	38	37	44	159	116	39	40	44
28	35	85	41	88	37	37	42	144	110	40	40	53
29	34	38	42	88	---	36	40	114	97	38	41	57
30	34	34	39	89	---	59	56	97	76	37	41	54
31	35	---	52	88	---	80	---	91	---	59	69	---
MEAN	60.0	42.2	46.3	80.9	61.5	42.0	58.3	310	152	58.5	84.0	101
MAX	90	123	100	107	94	80	133	2030	471	146	180	190
MIN	34	29	30	37	37	36	39	49	53	37	40	40

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	57.4	73.7	80.2	88.9	94.1	137	142	104	74.3	78.3	70.2	63.2
MEAN	57.4	73.7	80.2	88.9	94.1	137	142	104	74.3	78.3	70.2	63.2
MAX	312	239	202	251	221	379	438	310	319	339	197	177
(WY)	1956	1956	1973	1949	1951	1953	1983	1989	1972	1945	1955	1975
MIN	12.1	17.7	12.6	22.6	23.0	11.2	14.5	20.4	13.4	11.6	11.3	7.87
(WY)	1942	1950	1981	1982	1967	1981	1981	1981	1957	1954	1944	1953

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	91.7	88.5
HIGHEST ANNUAL MEAN		156
LOWEST ANNUAL MEAN		30.9
HIGHEST DAILY MEAN	2030	2190
LOWEST DAILY MEAN	29	5.8
INSTANTANEOUS PEAK FLOW	2530	2530
INSTANTANEOUS PEAK STAGE	8.08	8.08
INSTANTANEOUS LOW FLOW	22	.00
10 PERCENTILE	147	176
50 PERCENTILE	63	60
95 PERCENTILE	31	16

e Estimated

HACKENSACK RIVER BASIN

01377000 HACKENSACK RIVER AT RIVERVALE, NJ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1962, 1964 to current year.

COOPERATION.--Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988 27...	1300	36	402	7.9	8.5	9.8	83	3.9	920	130
JAN 1989 19...	1130	40	380	7.9	4.0	11.8	90	4.5	70	350
APR 05...	1230	41	420	8.1	11.0	11.3	104	3.0	--	--
MAY 31...	1100	92	320	7.9	18.5	7.5	80	3.0	20	230
JUL 05...	1045	43	--	7.9	21.0	5.7	--	3.3	230	3500
AUG 09...	1200	84	350	8.0	23.0	6.3	73	3.9	130	130

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988 27...	120	36	7.3	31	2.2	88	21	57	0.1
JAN 1989 19...	120	37	7.1	28	2.1	86	22	52	0.1
APR 05...	120	35	6.8	37	1.8	80	22	64	0.1
MAY 31...	100	31	5.9	27	1.8	71	17	45	0.1
JUL 05...	110	32	6.2	25	2.0	80	16	42	0.1
AUG 09...	98	30	5.7	27	1.8	78	14	39	0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988 27...	2.1	209	0.021	0.45	0.35	0.94	1.4	0.05	6.3
JAN 1989 19...	3.3	203	0.010	0.77	0.25	0.89	1.7	0.04	5.6
APR 05...	4.3	219	0.015	0.91	0.09	0.56	1.5	0.07	5.8
MAY 31...	2.4	173	0.061	0.58	0.13	0.90	1.5	0.06	6.0
JUL 05...	5.7	177	0.055	0.70	0.19	0.97	1.7	0.08	6.3
AUG 09...	4.7	169	0.010	0.28	0.09	0.67	0.95	0.10	6.5

HACKENSACK RIVER BASIN

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01377000 HACKENSACK RIVER AT RIVERVALE, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SULFIDE TOTAL (MG/L AS S)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE)	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)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1988 27...	1300	<0.5	<10	2	<10	70	<1	2	8

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	PHENOLS TOTAL (UG/L)
OCT 1988 27...	560	<5	110	0.10	5	<1	10	1

HACKENSACK RIVER BASIN

01377500 PASCACK BROOK AT WESTWOOD, NJ

LOCATION.--Lat 40°59'33", long 74°01'19", Bergen County, Hydrologic Unit 02030103, on right bank 75 ft upstream from Harrington Avenue in Westwood, 500 ft downstream from Musquapsink Brook, and 2.3 mi upstream from mouth.

DRAINAGE AREA.--29.6 mi².

PERIOD OF RECORD.--October 1934 to current year.

REVISED RECORDS.--WDR NJ-87-1: 1984 (P).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 28.62 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records fair. Flow regulated by Woodcliff Lake 3.0 mi above station (see Hackensack River basin, reservoirs in). Water diverted for municipal supply by Spring Valley Water Co., by pumpage from well fields in headwater area of Pascack Brook in vicinity of Spring Valley, NY, and by Park Ridge Water Department by pumping from wells above Woodcliff Lake probably reduces flow past this station. Several measurements of water temperature were made during the year.

COOPERATION.--Gage-height record collected in cooperation with Hackensack Water Co.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47	56	77	23	23	29	106	31	58	32	49	21
2	34	82	39	23	23	28	55	102	53	32	79	20
3	45	30	34	23	25	28	55	44	40	32	81	20
4	32	21	27	22	23	27	57	34	44	32	76	20
5	19	47	32	22	23	29	95	46	42	259	74	19
6	17	111	29	23	23	32	169	350	45	87	73	20
7	19	33	27	22	23	29	90	68	74	52	71	20
8	38	24	23	27	22	27	70	66	123	41	70	19
9	28	21	23	26	22	26	61	54	222	34	69	19
10	23	47	22	24	22	26	54	210	247	62	68	19
11	22	79	22	23	22	26	46	351	59	85	85	18
12	21	78	22	34	23	26	42	102	55	33	135	18
13	20	100	23	33	22	26	42	73	154	32	147	20
14	19	86	23	26	26	25	48	58	61	32	165	29
15	19	52	23	39	28	26	62	58	156	30	137	30
16	18	22	23	29	32	25	189	598	250	29	82	25
17	18	77	23	26	27	25	77	1040	122	51	78	29
18	18	70	22	25	22	41	60	194	61	33	74	20
19	17	28	22	25	22	38	49	133	55	29	73	75
20	17	229	22	25	22	28	43	108	50	82	71	326
21	19	316	23	24	85	35	40	95	126	61	70	293
22	64	103	23	23	91	40	40	78	48	59	56	108
23	25	95	27	23	78	32	35	87	57	28	27	103
24	20	91	35	23	46	85	34	298	136	40	26	91
25	19	85	31	23	34	213	33	107	42	69	25	84
26	19	49	25	24	38	60	33	84	56	82	25	103
27	18	44	24	24	38	41	36	86	88	81	24	88
28	18	199	30	23	37	38	34	78	50	83	24	84
29	18	97	27	23	---	36	29	60	43	80	23	78
30	18	90	24	26	---	80	46	59	32	78	22	42
31	17	---	24	24	---	186	---	59	---	55	21	---
MEAN	24.1	82.1	27.5	25.2	32.9	45.6	61.0	155	88.3	58.5	67.7	62.0
MAX	64	316	77	39	91	213	189	1040	250	259	165	326
MIN	17	21	22	22	22	25	29	31	32	28	21	18

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	37.3	48.9	52.3	53.8	60.6	80.9	81.4	64.4	50.3	46.4	42.8	40.0
MAX	143	131	129	151	135	197	198	155	175	180	127	157	
(WY)	1956	1978	1984	1979	1973	1953	1983	1989	1972	1945	1971	1971	
MIN	10.1	9.83	15.8	10.8	15.7	34.8	30.1	23.3	18.2	14.2	9.99	9.45	
(WY)	1942	1950	1940	1954	1954	1965	1986	1935	1939	1944	1935	1939	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	60.9	54.9	
HIGHEST ANNUAL MEAN		88.6	1952
LOWEST ANNUAL MEAN		27.6	1965
HIGHEST DAILY MEAN	1040	1770	Aug 28 1971
LOWEST DAILY MEAN	17	6.1	Oct 21 1949
INSTANTANEOUS PEAK FLOW	1650	2440	Sep 12 1971
INSTANTANEOUS PEAK STAGE	5.51	7.57	Sep 12 1971
INSTANTANEOUS LOW FLOW	15	5.6	Jun 29 1965
10 PERCENTILE	105	98	
50 PERCENTILE	36	41	
95 PERCENTILE	20	14	

01378500 HACKENSACK RIVER AT NEW MILFORD, NJ

LOCATION.--Lat 40°56'52", Long 74°01'34", Bergen County, Hydrologic Unit 02030103, on right bank upstream from two masonry dams and two lift gates at pumping plant of Hackensack Water Co., New Milford, 4.0 mi downstream from Pascack Brook, and 21.8 mi upstream from mouth.

DRAINAGE AREA.--113 mi².

PERIOD OF RECORD.--October 1921 to current year. Monthly discharge only for October 1921, published in WSP 1302.

REVISED RECORDS: WSP 601: Drainage area. WSP 711: 1927-28(M). WRD-NJ 1970: 1969. WDR-NJ 1977: 1975(M). WDR-NJ 1984: 1983.

GAGE.--Water-stage recorder and crest-stage gage above south dam. Datum of gage is 6.25 ft above National Geodetic Vertical Datum of 1929. October 1921 to November 23, 1923, nonrecording gage and Nov. 23, 1923, to Sept. 25, 1934, water-stage recorder at same site at datum 0.05 ft lower.

REMARKS.--Records poor. Records given herein do not include diversion at gage. Flow regulated by DeForest Lake, Lake Tappan, Woodcliff Lake 9.0 mi upstream from station, and Oradell Reservoir 0.6 mi upstream from station (see Hackensack River basin, reservoirs in). Water pumped into basin above gage from Sparkill Creek (Hudson River basin) and Saddle River (Passaic River basin) by Hackensack Water Company for municipal supply (see Hackensack River basin, diversions). Water diverted at gage, De Forest Lake, and West Nyack, NY, for municipal supply (see Hackensack River basin, diversions). Several measurements of water temperature were made during the year.

COOPERATION.--Gage-height record collected in cooperation with Hackensack Water Co.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.4	1.2	28	.55	1.1	1.8	173	18	37	27	.63	21
2	4.2	1.1	362	.50	1.3	1.3	55	169	53	29	.64	20
3	1.8	.83	14	.51	.88	.92	42	230	16	33	.68	17
4	2.0	.97	16	.52	1.1	2.0	40	91	22	27	.62	20
5	1.2	1.3	13	.56	.89	.94	65	229	20	54	.66	16
6	.68	1.2	16	.45	1.1	2.8	345	1190	16	147	.52	6.4
7	.77	1.8	17	.50	.90	1.0	107	573	15	33	1.1	.56
8	.70	1.5	15	.46	.95	1.1	60	128	17	24	.64	.75
9	.91	1.5	15	.69	.96	7.2	54	230	463	22	.68	.70
10	.98	1.5	15	.64	1.0	2.8	33	601	1030	32	.81	2.0
11	1.0	2.2	14	.73	1.1	1.2	13	961	181	28	.54	3.0
12	.92	1.2	15	.75	1.4	1.3	15	514	117	28	.66	2.3
13	.82	2.7	18	1.1	1.3	1.1	13	200	441	28	135	2.3
14	.86	1.4	12	.94	1.1	1.2	13	143	95	25	82	3.0
15	.78	2.7	.68	.88	1.2	1.4	13	119	405	23	323	5.8
16	.81	1.9	.60	1.2	.94	1.4	348	1420	723	20	141	2.3
17	.81	1.8	.48	1.1	1.0	1.1	146	e4200	411	19	129	4.7
18	.77	2.4	.46	1.5	.85	1.4	90	2200	250	19	90	3.1
19	.87	2.1	.50	1.4	1.1	1.4	67	478	106	21	63	3.7
20	.98	6.9	.56	1.2	1.2	1.4	42	242	62	18	46	150
21	.94	4.4	.62	.84	2.9	2.0	32	195	171	19	31	1320
22	.99	4.6	.54	.83	1.1	1.0	19	142	58	18	16	180
23	1.3	4.5	.46	.80	1.6	1.4	17	173	50	22	18	19
24	1.1	6.3	.54	.88	1.0	18	11	783	100	21	17	20
25	.92	2.9	.55	.69	2.1	369	12	440	48	4.8	18	22
26	1.2	2.8	.53	.81	1.6	68	16	193	52	1.6	17	17
27	1.1	4.3	.44	.89	1.2	29	14	188	102	.61	18	24
28	1.1	338	.48	.94	1.4	19	15	154	69	.73	18	23
29	1.1	110	.61	.99	---	18	17	62	53	.65	19	22
30	1.1	43	.49	1.1	---	36	14	22	36	.56	20	22
31	1.2	---	.53	1.3	---	493	---	79	---	.85	20	---
MEAN	1.27	18.6	18.7	.85	1.22	35.1	63.4	528	174	24.1	39.7	65.1
MAX	5.4	338	362	1.5	2.9	493	348	4200	1030	147	323	1320
MIN	.68	.83	.44	.45	.85	.92	11	18	15	.56	.52	.56

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	34.7	69.3	90.1	107	134	218	206	128	64.8	48.5	40.2	45.6
MAX	480	356	329	359	396	650	774	528	612	543	372	385	
(WY)	1956	1928	1973	1937	1939	1936	1983	1989	1972	1945	1927	1927	
MIN	.00	.00	.00	.00	.00	.00	.00	.39	.00	.00	.00	.00	.00
(WY)	1922	1924	1932	1971	1977	1981	1981	1985	1977	1954	1924	1923	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	81.5	98.7
HIGHEST ANNUAL MEAN		263
LOWEST ANNUAL MEAN		.40
HIGHEST DAILY MEAN	4200	4230
LOWEST DAILY MEAN	.44	.00
INSTANTANEOUS PEAK FLOW	4630	4630
INSTANTANEOUS PEAK STAGE	8.23	8.23
10 PERCENTILE	184	293
50 PERCENTILE	5.0	19
95 PERCENTILE	.44	.00

e Estimated

RESERVOIRS IN HACKENSACK RIVER BASIN

01376700 DE FOREST LAKE.--Lat 41°06'23", long 73°58'01, Rockland County, NY, Hydrologic Unit 02030103, at dam on Hackensack River, 0.8 mi north of West Nyack, NY. DRAINAGE AREA, 27.5 mi². PERIOD OF RECORD, February 1956 to current year. REVISED RECORDS.--WDR NJ-84-1: Drainage area. GAGE, water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. REMARKS.--Reservoir is formed by earthfill dam with sheet piling cutoff and concrete spillway; dam completed and storage began in February 1956. Crest of dam topped by two 50 ft Bascule Gates 5 ft high. Capacity 5,670,500 gal, elevation, 85.00 ft, top of Bascule gates. Flow regulated by 12-inch Howell-Bunger valve at elevation, 59.25 ft and 24-inch Howell-Bunger valve at elevation, 61.25 ft. Reservoir used for storage and water released by Hackensack Water Co., for municipal water supply.

COOPERATION.--Records provided by Hackensack Water Company.

01376950 LAKE TAPPAN.--Lat 41°01'05", long 74°00'05", Bergen County, Hydrologic Unit 02030103, at dam on Hackensack River, 0.5 mi north of Old Tappan. DRAINAGE AREA, about 49.0 mi². PERIOD OF RECORD, October 1966 to current year. GAGE, water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by earthfill dam, completed in 1966. Capacity, 3,853,000,000 gal, revised, elevation, 55.00 ft at top of Bascule gates. Flow regulated by four Bascule gates and one sluice gate. Water is released by Hackensack Water Co., for municipal water supply.

COOPERATION.--Records provided by Hackensack Water Company.

01377450 WOODCLIFF LAKE.--Lat 41°01', long 74°03', Bergen County, Hydrologic Unit 02030103, at dam on Pascack Brook, 0.7 mi north of Hillsdale. DRAINAGE AREA, 19.4 mi². PERIOD OF RECORD, December 1929 to current year. Monthend contents only, prior to September 1953, published in WSP 1302, 1722. GAGE, water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by earthfill dam, completed about 1905. Capacity, 871,000,000 gal, elevation, 95.00 ft at top of Bascule gates, revised. Flow is regulated by two Bascule gates and one 36-inch gate in center of dam. Water is released for diversion at New Milford by Hackensack Water Co., for municipal supply.

COOPERATION.--Records provided by Hackensack Water Company.

01378480 ORADELL RESERVOIR.--Lat 40°57', long 74°02', Bergen County, Hydrologic Unit 02030103, at dam on Hackensack River at Oradell. DRAINAGE AREA, 113 mi². PERIOD OF RECORD, December 1922 to current year. Monthend contents only, prior to September 1953, published in WSP 1302, 1722. REVISED RECORDS.--WDR NJ-84-1: Spillway elevation. GAGE, water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by hollow concrete dam, completed in 1922. Capacity at spillway level, 3,507,000,000 gal, revised, elevation, 23.16 ft. Flow regulated by seven sluice gates (7 by 9 ft). Water is released for diversion by Hackensack Water Co., 1 mi downstream from dam for municipal supply.

COOPERATION.--Records provided by Hackensack Water Company.

MONTHEND ELEVATION AND CONTENTS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

Date	Elevation (feet)†	Contents (million gallons)	Change in contents (equivalent in ft ³ /s)	Elevation (feet)†	Contents (million gallons)	Change in contents (equivalent in ft ³ /s)
01376700 DE FOREST LAKE				01376950 LAKE TAPPAN		
Sept. 30.....	80.06	4,135	-	49.62	2,095	-
Oct. 31.....	77.19	3,296	-41.9	49.52	2,066	-1.4
Nov. 30.....	80.29	4,204	+46.8	54.39	3,634	+80.9
Dec. 31.....	79.72	4,034	-8.5	54.49	3,670	+1.8
CAL YR 1988			-7.0			+4.4
Jan. 31.....	80.28	4,201	+8.3	52.28	2,915	-37.7
Feb. 28.....	81.35	4,523	+17.8	52.02	2,831	-4.6
Mar. 31.....	83.08	5,055	+26.5	53.83	3,438	+30.3
Apr. 30.....	85.08	5,696	+33.1	55.11	3,892	+23.4
May 31.....	85.21	5,739	+2.1	55.20	3,924	+5.0
June 30.....	85.17	5,726	-7	55.18	3,917	-4
July 31.....	84.80	5,604	-6.1	54.92	3,823	-4.7
Aug. 31.....	84.74	5,585	-9	54.85	3,798	-1.2
Sept. 30.....	85.13	5,713	+6.6	55.12	3,895	+5.0
WTR YR 1989	-	-	+6.7	-	-	+7.6
Date	Elevation (feet)†	Contents (million gallons)	Change in contents (equivalent in ft ³ /s)	Elevation (feet)†	Contents (million gallons)	Change in contents (equivalent in ft ³ /s)
01377450 WOODCLIFF LAKE				01378480 ORADELL RESERVOIR		
Sept. 30.....	91.63	685	-	18.66	2,387	-
Oct. 31.....	90.32	617	-3.4	19.05	2,477	+4.5
Nov. 30.....	88.71	536	-4.2	23.22	3,523	+53.9
Dec. 31.....	88.53	527	-5	18.69	2,394	-56.3
CAL YR 1988			+7			-4.3
Jan. 31.....	89.13	556	+1.5	18.65	2,384	-5
Feb. 28.....	90.77	640	+4.6	21.62	3,100	+39.6
Mar. 31.....	91.29	667	+1.3	23.37	3,564	+23.2
Apr. 30.....	91.24	665	-1	22.52	3,334	-11.9
May 31.....	95.07	875	+10.5	23.05	3,476	+7.1
June 30.....	94.99	870	-3	22.83	3,417	-3.0
July 31.....	90.92	648	-11.1	20.64	2,855	-28.0
Aug. 31.....	83.68	312	-16.8	20.89	2,917	+3.1
Sept. 30.....	87.12	460	+7.6	21.01	2,947	+1.5
WR YR 1989	-	-	-1.0	-	-	+2.4

† Elevation at 2400 of the last day of each month.

DIVERSIONS INTO AND FROM HACKENSACK RIVER BASIN

- 01376272 Hackensack Water Co., diverts water from Sparkill Creek (Hudson River basin) at foot of Danny Lane in Northvale, 300 ft south of New York-New Jersey state line and 0.6 mi upstream of Sparkill Brook. Water is diverted into Oradell Reservoir on the Hackensack River, for municipal supply. Records provided by Hackensack Water Co.
- 01376699 Spring Valley Water Co., diverts water at De Forest Lake for municipal supply in Rockland County, NY. Records provided by Spring Valley Water Co.
- 01376810 Village of Nyack, NY, diverts water from Hackensack River 100 ft downstream from gaging station on Hackensack River at West Nyack, NY (station 01376800, measured flow includes diversions) for municipal supply. Records provided by Board of Water Commissioners of Nyack, NY.
- 01378490 Hackensack Water Co., diverts water for municipal supply from Oradell Reservoir at Haworth pumping station 2.0 mi upstream from gaging station on Hackensack River at New Milford and from Hackensack River, at New Milford pumping station about 50 ft above gaging station on Hackensack River at New Milford, NJ (station 01378500). Records provided by Hackensack Water Co.
- 01378520 Hackensack Water Co., diverts water from Hirshfeld Brook, a tributary of the Hackensack River, below the gaging station on Hackensack River at New Milford, NJ, for municipal supply. Records provided by Hackensack Water Co.
- 01388981 Hackensack Water Co., diverts water from the Wanaque South pumping station on the Pompton River at Two Bridges, 750 ft upstream from the Passaic River, to Oradell Reservoir. Water can also be diverted from Wanaque Reservoir to Oradell Reservoir in the Hackensack River basin. Figures given herein include diversion from both sources. Formerly diversion was from the Ramapo River (see station 01387991). Records provided by Hackensack Water Company.
- 01391210 Hackensack Water Co., diverts water from Saddle River (Passaic River basin) just north of bridge on State Route 4 at Arcola. Water is diverted into Oradell Reservoir on the Hackensack River, for municipal supply. Records provided by Hackensack Water Co.

DIVERSIONS, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

MONTH	01376699 SPRING VALLEY WATER CO.	01376810 WEST NYACK, NY	01378490 HACKENSACK WATER CO.
October.....	12.3	2.65	153
November.....	7.7	2.13	145
December.....	4.9	2.63	142
CAL YR 1988.....	7.5	2.70	160
January.....	0	2.47	145
February.....	0	2.49	144
March.....	0	2.48	146
April.....	2.2	2.48	146
May.....	6.1	2.66	153
June.....	7.2	2.92	166
July.....	10.1	2.91	171
August.....	9.0	2.92	177
September.....	9.4	2.76	175
WTR YR 1989.....	5.8	2.88	155

The following are diversions by pumpage from sources other than the Hackensack River into Oradell Reservoir. These figures are included in diversions from Hackensack River as noted above (station 01378490).

MONTH	01376272 SPARKILL CREEK (HUDSON RIVER BASIN)	01378520 HIRSHFELD BROOK (HACKENSACK RIVER BASIN)	01388981 POMPTON RIVER (PASSAIC RIVER BASIN)	01391210 SADDLE RIVER (PASSAIC RIVER BASIN)	WELLS TO SURFACE SUPPLY
October.....	0	0	63.4	0.20	0.35
November.....	0	0	6.0	.04	.24
December.....	0	0	0	0	.04
CAL YR 1988	0	.23	25.3	.93	.35
January.....	0	0	0	0	.01
February.....	0	0	43.0	.29	.02
March.....	0	0	46.4	.50	.14
April.....	0	0	0	0	.11
May.....	0	0	.44	0	.41
June.....	0	0	2.2	0	.37
July.....	0	0	2.7	0	.37
August.....	0	0	4.4	0	.47
September.....	0	0	10.1	0	.40
WTR YR 1989	0	0	14.8	.003	.24

01379000 PASSAIC RIVER NEAR MILLINGTON, NJ

LOCATION.--Lat 40°40'48", long 74°31'45", Somerset County, Hydrologic Unit 02030103, on right bank 200 ft downstream from Davis Bridge on Maple Avenue, 0.7 mi northwest of Millington, and 1.8 mi downstream from Black Brook.

DRAINAGE AREA.--55.4 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1903 to June 1906 (published as "at Millington"), October 1921 to current year. Monthly discharge only for some periods published in WSP 1302.

REVISED RECORDS.--WSP 781: Drainage area. WSP 1552: 1905(M).

GAGE.--Water-stage recorder, crest-stage gage, and concrete-block control. Datum of gage is 215.60 ft above National Geodetic Vertical Datum of 1929 (levels from New Jersey Geological Survey bench mark). Nov. 25, 1903 to July 15, 1906, nonrecording gage at bridge 0.8 mi downstream at different datum. Nov. 10, 1921 to Sept. 1, 1923, nonrecording gage at site 200 ft downstream at present datum. Oct. 31, 1923 to July 3, 1925, nonrecording gage and concrete control at present site and datum.

REMARKS.--No estimated daily discharges. Records good. Diversion from Osborn Pond by Commonwealth Water Co., Bernards Division, was discontinued in April 1979 and the installation dismantled. Several measurements of water temperature, other than those published, were made during the year. Satellite telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	39	243	45	81	71	404	78	70	38	23	19
2	15	71	173	42	77	64	324	305	61	35	22	18
3	22	58	131	42	78	61	242	445	53	32	24	16
4	19	55	104	38	73	59	209	310	48	31	23	16
5	18	58	82	30	61	58	190	243	45	52	22	15
6	17	95	70	24	55	69	232	564	48	113	21	15
7	17	85	65	23	52	65	238	643	71	79	22	14
8	21	73	58	29	44	55	205	508	157	128	21	14
9	22	67	52	52	38	55	173	362	147	109	18	14
10	21	57	44	49	31	60	148	368	264	76	17	14
11	20	52	40	48	30	63	121	703	241	67	23	13
12	19	45	30	54	30	72	101	640	183	53	43	14
13	19	50	23	93	29	69	91	551	217	51	48	14
14	18	91	23	77	41	67	95	397	231	51	35	17
15	18	73	26	117	62	68	97	274	202	40	35	35
16	17	65	26	142	97	68	253	351	208	42	35	25
17	17	112	23	116	80	65	238	752	196	85	31	33
18	17	159	21	72	65	70	192	790	149	68	26	33
19	17	118	20	110	55	103	154	674	115	54	25	99
20	17	296	19	80	50	92	126	473	89	52	27	698
21	20	714	25	63	112	128	106	309	75	67	25	954
22	65	593	30	43	334	147	91	210	76	49	25	806
23	64	459	30	40	317	118	79	161	145	43	26	644
24	52	311	51	39	235	139	72	249	158	38	33	461
25	53	198	96	40	174	311	67	228	128	34	25	294
26	42	139	79	41	129	271	64	177	90	32	21	238
27	36	111	69	57	100	226	60	148	71	30	19	217
28	32	336	64	56	82	171	56	133	58	29	18	155
29	29	371	74	55	---	134	54	105	51	26	19	120
30	26	308	59	67	---	127	80	88	43	23	28	93
31	24	---	53	85	---	330	---	79	---	22	22	---
MEAN	26.1	175	61.4	60.3	93.3	111	152	365	123	53.2	25.9	171
MAX	65	714	243	142	334	330	404	790	264	128	48	954
MIN	15	39	19	23	29	55	54	78	43	22	17	13
IN.	.54	3.53	1.28	1.25	1.75	2.32	3.06	7.60	2.48	1.11	.54	3.44

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	42.3	86.1	103	111	131	187	146	93.4	56.5	45.9	51.1	53.5
MAX		170	340	335	463	380	430	420	365	292	307	397	380
(WY)		1956	1933	1984	1905	1904	1936	1983	1989	1972	1975	1942	1971
MIN		3.56	7.47	8.18	6.78	26.1	64.2	25.9	20.3	3.95	1.25	1.37	.73
(WY)		1964	1966	1966	1981	1934	1981	1985	1965	1965	1965	1966	1964

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	118	90.9
HIGHEST ANNUAL MEAN		163
LOWEST ANNUAL MEAN		32.3
HIGHEST DAILY MEAN	954	1800
LOWEST DAILY MEAN	13	.30
INSTANTANEOUS PEAK FLOW	989	2000a
INSTANTANEOUS PEAK STAGE	7.78	9.73
INSTANTANEOUS LOW FLOW	13	.2
ANNUAL RUNOFF (INCHES)	28.90	22.29
10 PERCENTILE	298	226
50 PERCENTILE	64	48
95 PERCENTILE	18	4.9

a From rating curve extended above 1,400 ft³/s on basis of velocity-area study

PASSAIC RIVER BASIN

63

01379000 PASSAIC RIVER NEAR MILLINGTON, NJ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1923-25, 1962 to current year.

COOPERATION.--Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, EC BROTH (MPN)	STREP- TOCOCCI FECAL (MPN)
OCT 1988 18...	1200	17	298	7.6	11.5	8.2	76	3.0	49	49
FEB 1989 13...	1430	30	308	7.4	0.5	15.3	105	0.3	--	--
APR 04...	1030	213	189	7.2	9.0	8.4	73	3.6	49	33
JUN 12...	1200	184	161	6.9	19.0	4.3	47	1.8	230	3500
JUL 06...	1030	127	160	7.0	21.0	4.6	51	2.1	3500	16000
AUG 01...	1030	23	245	7.2	20.5	4.9	55	1.8	110	<200

DATE	HARD- NESS TOTAL (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)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT 1988 18...	85	20	8.4	24	2.0	60	27	32	0.1
FEB 1989 13...	93	22	9.2	25	2.0	53	29	43	0.1
APR 04...	53	13	4.9	16	1.4	32	21	26	0.1
JUN 12...	54	13	5.2	11	1.1	44	11	15	0.1
JUL 06...	56	14	5.2	11	1.4	40	12	16	0.1
AUG 01...	79	20	7.0	18	1.0	69	13	22	0.2

DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHOROUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988 18...	14	163	0.008	0.52	<0.05	0.45	0.97	0.08	4.9
FEB 1989 13...	7.5	170	0.010	0.33	0.03	0.60	0.93	0.03	4.4
APR 04...	4.9	106	0.003	0.30	<0.05	0.40	0.70	0.09	7.7
JUN 12...	12	95	0.010	0.20	0.12	0.99	1.2	0.21	12
JUL 06...	17	101	0.016	0.38	0.12	0.79	1.2	0.15	9.6
AUG 01...	20	143	0.013	0.58	<0.05	0.48	1.1	0.13	6.0

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

01379500 PASSAIC RIVER NEAR CHATHAM, NJ

LOCATION.--Lat 40°43'31", long 74°23'23", Morris County, Hydrologic Unit 02030103, on left bank 150 ft downstream from Stanley Avenue bridge in Chatham, and 3.0 mi upstream from Canoe Brook.

DRAINAGE AREA.--100 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1903 to December 1911, October 1937 to current year. Monthly discharge only for some periods, published in WSP 1302.

REVISED RECORDS.--WDR NJ-86-1: 1984 (M).

GAGE.--Water-stage recorder. Concrete control since Sept. 19, 1938. Datum of gage is 193.51 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 31, 1911, nonrecording gage at bridge 150 ft upstream at different datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. Diversion from Osborn Pond by Commonwealth Water Co., Bernards Division, during water years 1903-79. Several measurements of water-temperature, other than those published, were made during the year. Satellite telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	90	495	81	145	131	607	161	114	68	41	38
2	32	142	380	74	127	116	590	524	102	61	41	33
3	47	109	249	74	125	105	511	689	88	56	50	30
4	42	83	176	e70	129	99	428	662	78	53	47	27
5	35	103	140	e60	106	97	355	547	73	231	42	27
6	31	156	117	53	92	117	422	829	87	308	39	28
7	30	137	104	44	88	123	438	905	137	187	38	28
8	48	107	95	64	78	102	404	861	329	228	40	27
9	40	93	85	105	e67	103	338	730	365	189	37	26
10	36	84	74	100	e54	103	275	804	626	135	34	25
11	34	76	74	86	e51	113	221	1010	554	115	61	25
12	31	67	88	119	e50	132	182	1030	410	94	131	25
13	31	91	50	216	48	132	165	936	531	96	136	25
14	30	147	44	172	72	118	169	801	472	98	94	50
15	28	127	43	268	108	117	196	644	434	80	80	86
16	28	98	44	294	184	116	451	795	385	84	82	74
17	28	236	42	221	157	107	454	1050	335	182	61	82
18	28	295	38	170	112	111	374	1110	261	152	51	62
19	27	213	37	126	95	164	284	1020	196	105	50	315
20	26	554	39	157	86	150	221	882	153	96	48	840
21	50	809	42	e107	307	231	179	716	135	100	50	1150
22	193	897	51	e75	555	267	152	532	115	95	62	1110
23	144	816	58	e70	585	205	130	391	229	77	57	1050
24	93	682	90	70	505	279	115	425	307	69	77	886
25	82	525	175	70	371	511	104	425	253	62	60	716
26	71	357	160	69	247	500	96	338	174	56	44	629
27	57	211	118	90	186	422	89	258	134	53	36	491
28	50	591	114	97	157	324	83	221	104	52	34	354
29	46	654	145	88	---	240	79	175	91	49	44	214
30	42	606	119	119	---	228	199	143	79	43	53	154
31	39	---	95	175	---	494	---	126	---	41	46	---
MEAN	49.2	305	116	116	175	195	277	637	245	107	57.0	288
MAX	193	897	495	294	585	511	607	1110	626	308	136	1150
MIN	26	67	37	44	48	97	79	126	73	41	34	25
IN.	.57	3.41	1.33	1.33	1.82	2.25	3.09	7.34	2.73	1.23	.66	3.21

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	81.9	157	200	223	242	342	267	175	114	84.3	96.8	97.7
MAX	576	590	655	734	493	700	711	637	533	539	664	713	
(WY)	1904	1973	1984	1979	1908	1907	1983	1989	1972	1975	1942	1971	
MIN	8.05	13.6	32.3	21.5	63.2	94.5	54.3	7.52	13.6	7.74	7.35	4.70	
(WY)	1965	1950	1940	1981	1980	1911	1985	1903	1965	1966	1957	1906	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	213	172
HIGHEST ANNUAL MEAN		305
LOWEST ANNUAL MEAN		67.7
HIGHEST DAILY MEAN	1150	2990
LOWEST DAILY MEAN	25	2.0
INSTANTANEOUS PEAK FLOW	1330	3380
INSTANTANEOUS PEAK STAGE	6.26	9.36a
INSTANTANEOUS LOW FLOW	24	2.0
ANNUAL RUNOFF (INCHES)	28.98	23.33
10 PERCENTILE	554	463
50 PERCENTILE	112	82
95 PERCENTILE	30	9.8

a From floodmark
e Estimated

PASSAIC RIVER BASIN

01379500 PASSAIC RIVER NEAR CHATHAM, NJ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1962 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: October 1966 to September 1968.

SUSPENDED-SEDIMENT DISCHARGE: July 1963 to September 1968.

COOPERATION.--Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, EC BROTH (MPN)	STREP- TOCOCCI FECAL (MPN)
OCT 1988										
04...	1030	43	770	7.8	16.5	5.6	58	3.6	3500	1700
FEB 1989										
13...	1130	41	438	8.1	0.5	18.2	125	1.3	--	--
APR										
04...	1300	427	256	7.4	9.5	9.8	87	5.1	330	790
JUN										
07...	1030	116	298	7.5	20.0	4.4	49	6.0	14000	24000
JUL										
06...	1230	306	171	7.3	21.0	5.9	66	3.5	92000	92000
AUG										
01...	1300	40	370	7.7	22.5	8.3	96	2.7	200	800

DATE	HARD- NESS TOTAL (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)	ALKA- LINITY LAB (MG/L AS CaCO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS Cl)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT 1988									
04...	120	28	13	110	3.8	80	89	120	0.1
FEB 1989									
13...	110	27	11	43	2.9	65	37	69	0.1
APR									
04...	63	15	6.2	26	1.4	37	25	40	0.1
JUN									
07...	83	20	8.1	26	2.1	60	25	35	0.1
JUL									
06...	51	13	4.5	14	1.9	36	14	17	0.1
AUG									
01...	100	25	9.2	32	2.6	78	23	42	0.2

DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHOROUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988									
04...	12	424	0.199	3.75	0.64	1.4	5.1	0.76	6.4
FEB 1989									
13...	9.2	238	0.049	1.90	0.87	1.6	3.5	0.55	4.9
APR									
04...	8.7	145	0.026	0.63	0.12	0.68	1.3	0.18	7.0
JUN									
07...	14	166	0.106	1.16	0.39	1.0	2.2	0.43	7.8
JUL									
06...	10	96	0.058	0.93	0.22	1.2	2.2	0.65	8.4
AUG									
01...	17	198	0.152	1.59	0.31	1.0	2.6	0.53	6.4

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SULFIDE TOTAL (MG/L AS S)	NITRO- GEN, NH ₄ + ORG. TOT IN BOT MAT (MG/KG AS N)	CARBON, INOR- GANIC, TOT IN BOT MAT (G/KG AS C)	CARBON, INORG + ORGANIC TOT. IN BOT MAT (GM/KG AS C)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC TOTAL IN BOT- TOM MA- TERIAL (UG/G AS AS)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CD)
OCT 1988												
04...	1030	<0.5	--	--	--	<10	1	--	<10	220	<1	--
04...	1030	--	250	<0.1	8.6	--	--	4	--	--	--	<10
JUN 1989												
07...	1030	<0.5	--	--	--	10	<1	--	<10	110	1	--

DATE	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, RECOVER. FM BOT- TOM MA- TERIAL (UG/G)	COBALT, RECOVER. FM BOT- TOM MA- TERIAL (UG/G AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, RECOVER. FM BOT- TOM MA- TERIAL (UG/G AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, RECOVER. FM BOT- TOM MA- TERIAL (UG/G AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, RECOVER. FM BOT- TOM MA- TERIAL (UG/G AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, RECOVER. FM BOT- TOM MA- TERIAL (UG/G)
OCT 1988											
04...	2	--	--	11	--	830	--	<5	--	130	--
04...	--	10	<50	--	20	--	5600	--	60	--	190
JUN 1989											
07...	2	--	--	10	--	2000	--	6	--	190	--

DATE	MERCURY TOTAL RECOVER- ABLE (UG/L AS HG)	MERCURY RECOV. FM BOT- TOM MA- TERIAL (UG/G AS HG)	NICKEL, TOTAL RECOVER- ABLE (UG/L AS NI)	NICKEL, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SELE- NIUM, IN BOT- TOM MA- TERIAL (UG/G)	ZINC, TOTAL RECOVER- ABLE (UG/L AS ZN)	ZINC, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS ZN)	PHENOLS TOTAL (UG/L)	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PCN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
OCT 1988											
04...	0.20	--	10	--	<1	--	10	--	2	--	--
04...	--	0.07	--	10	--	<1	--	60	--	<1	<1.0
JUN 1989											
07...	<0.10	--	4	--	<1	--	20	--	1	--	--

[illegible][illegible]

01379700 ROCKAWAY RIVER AT BERKSHIRE VALLEY, NJ

LOCATION.--Lat 40°55'51", long 74°35'42", Morris County, Hydrologic Unit 02030103, on left bank 60 ft downstream from bridge on Berkshire Valley Road in Berkshire Valley, 2.7 mi upstream from Stephens Brook, and 3.8 mi northwest of Dover.

DRAINAGE AREA.--24.4 mi².

PERIOD OF RECORD.--Low-flow partial-record station water years 1960-72. May 1985 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 682.8 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records fair except from October 1 to March 12, which are poor. Some regulation from lakes and reservoirs upstream. Several measurements of water temperature were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 11, 1936, reached a stage of 6.7 ft, present datum, discharge not determined. Flood of April 5, 1984, reached a stage of 9.05 ft, from floodmarks, discharge 1,290 ft³/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	13	56	27	48	40	102	35	63	51	15	14
2	15	16	49	26	42	38	90	71	59	43	15	13
3	18	15	44	25	29	37	82	85	49	40	16	12
4	13	16	41	23	22	35	83	75	39	39	15	11
5	12	32	37	25	21	37	84	70	40	50	15	13
6	12	67	34	23	20	44	93	234	43	52	14	22
7	11	67	32	24	20	39	96	291	51	59	16	22
8	12	56	33	26	20	40	93	207	70	64	18	19
9	13	48	30	27	19	35	87	155	72	42	20	14
10	13	44	27	25	18	33	83	154	93	37	17	11
11	13	46	26	24	18	32	72	238	80	34	17	9.5
12	16	40	28	27	17	34	66	234	60	35	21	9.4
13	8.7	38	24	32	16	38	63	190	63	35	20	10
14	5.9	36	23	28	18	32	65	157	63	33	19	9.4
15	7.3	36	22	36	22	33	66	136	74	28	18	9.8
16	7.4	33	21	41	26	33	88	164	83	27	18	9.8
17	7.7	43	20	38	22	30	90	424	87	27	16	16
18	7.4	39	22	33	20	35	80	472	72	26	15	12
19	9.2	34	18	31	19	37	72	322	61	25	17	24
20	12	85	17	30	18	33	65	230	53	26	18	119
21	18	199	17	29	46	39	60	182	54	25	16	163
22	31	178	16	24	55	38	56	137	61	24	15	124
23	21	120	14	23	45	36	52	120	66	22	15	90
24	20	98	16	22	47	48	51	163	163	20	14	70
25	13	78	20	22	46	87	55	162	186	19	13	49
26	7.9	63	17	22	42	90	53	135	139	19	12	60
27	7.8	57	16	25	43	81	48	113	102	18	11	59
28	7.6	82	18	23	41	77	45	97	77	18	12	50
29	8.2	80	23	22	---	71	39	80	68	17	13	44
30	8.6	67	20	37	---	69	38	72	58	13	15	41
31	8.5	---	21	50	---	89	---	69	---	14	17	---
MEAN	12.2	60.9	25.9	28.1	29.3	46.5	70.6	170	75.0	31.7	15.9	37.7
MAX	31	199	56	50	55	90	102	472	186	64	21	163
MIN	5.9	13	14	22	16	30	38	35	39	13	11	9.4
IN.	.58	2.78	1.22	1.33	1.25	2.20	3.23	8.04	3.43	1.50	.75	1.72

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	29.6	60.6	63.2	40.7	48.1	72.1	92.0	82.7	39.9	25.9	19.0	42.7
MAX	51.3	73.0	97.0	53.4	74.7	96.6	152	170	75.0	31.7	25.8	100	
(WY)	1988	1986	1987	1986	1986	1986	1987	1989	1989	1989	1986	1987	1987
MIN	12.2	50.5	25.9	28.1	26.4	46.5	39.1	43.7	19.4	15.8	15.9	15.1	
(WY)	1989	1987	1989	1989	1987	1989	1988	1987	1987	1986	1989	1986	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	50.4	*****	
HIGHEST ANNUAL MEAN		56.0	1987
LOWEST ANNUAL MEAN		44.3	1988
HIGHEST DAILY MEAN	472	630	Sep 14 1987
LOWEST DAILY MEAN	5.9	5.9	Oct 14 1988
INSTANTANEOUS PEAK FLOW	534	744	Sep 14 1987
INSTANTANEOUS PEAK STAGE	6.72	7.23	Sep 14 1987
INSTANTANEOUS LOW FLOW	4.4	4.4	Oct 13 1988
ANNUAL RUNOFF (INCHES)	28.05	*****	
10 PERCENTILE	98	101	
50 PERCENTILE	35	38	
95 PERCENTILE	10	12	

***** Indicates not enough data, therefore statistic is not computed

PASSAIC RIVER BASIN

69

01379773 GREEN POND BROOK AT PICATINNY ARSENAL, NJ

LOCATION.--Lat 40°57'34", long 74°32'24", Morris County, Hydrologic Unit 02030103, on left bank at Picatinny Arsenal, 500 ft upstream from Picatinny Lake, and 0.55 mi downstream from Burnt Meadow Brook.

DRAINAGE AREA.--7.65 mi².

PERIOD OF RECORD.--October 1982 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 712.54 ft above National Geodetic Vertical Datum of 1929 (U.S. Army, Picatinny Arsenal, bench mark).

REMARKS.--No estimated daily discharges. Records good. Some regulation by Lake Denmark and Green Pond. Several measurements of water temperature were made during the year. Satellite telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.0	3.2	11	6.1	5.6	9.8	27	7.8	16	8.1	5.0	4.0
2	3.3	3.5	10	6.1	5.7	8.8	23	21	14	7.4	4.9	3.9
3	3.7	2.9	10	6.0	5.6	8.1	21	22	12	6.9	5.0	3.7
4	3.2	2.7	9.8	5.3	5.4	7.7	21	22	11	6.6	4.8	3.7
5	3.0	6.5	9.2	4.8	5.1	7.8	22	24	9.6	9.9	4.7	3.6
6	3.0	9.0	8.8	4.9	5.0	10	26	72	9.8	11	4.6	2.9
7	2.9	6.5	8.5	5.3	4.7	10	25	72	13	11	4.8	2.5
8	3.3	5.6	8.2	6.5	4.3	9.0	23	66	18	15	4.8	2.4
9	3.1	5.1	7.9	6.9	3.8	8.4	22	58	19	11	4.5	2.4
10	3.2	4.9	7.5	6.4	3.3	8.0	20	63	28	8.9	4.3	2.3
11	3.4	4.6	6.9	6.1	3.0	7.8	18	75	23	7.8	4.7	2.3
12	3.2	4.4	5.8	6.7	2.8	7.8	16	70	20	6.7	5.9	2.3
13	3.2	5.9	5.3	7.9	2.7	7.4	16	63	24	6.3	5.4	2.1
14	3.2	6.3	5.3	7.2	3.1	7.4	15	54	22	6.0	5.1	2.4
15	3.2	5.4	5.4	9.5	4.0	8.6	17	44	25	5.5	5.1	2.7
16	3.2	5.1	5.3	9.4	5.1	9.2	24	58	29	5.5	5.0	2.5
17	3.1	7.3	4.8	9.2	4.2	8.9	22	121	27	5.6	4.8	3.1
18	3.0	6.7	4.5	9.0	3.8	11	21	107	24	5.2	4.5	2.6
19	3.0	6.1	4.6	9.0	3.6	14	20	90	21	4.9	5.0	7.1
20	2.9	22	4.8	9.0	3.4	12	17	74	18	5.3	5.0	25
21	3.2	28	5.1	8.2	12	15	15	58	17	5.5	4.8	20
22	4.6	17	5.1	7.4	20	14	13	46	17	5.1	4.6	14
23	3.5	14	4.9	6.2	22	13	12	40	16	4.9	4.5	14
24	3.1	13	6.0	5.4	20	18	12	47	29	4.8	4.4	14
25	2.9	11	6.9	5.2	16	27	12	41	20	4.7	4.3	12
26	2.7	10	6.1	5.2	14	26	12	36	17	4.7	4.2	16
27	2.6	9.9	5.6	6.2	13	25	11	32	15	4.6	4.2	15
28	2.5	15	6.5	5.5	11	23	9.6	27	13	4.6	4.2	14
29	2.4	13	7.2	5.3	---	22	8.9	22	11	4.6	4.3	12
30	2.4	12	6.5	5.7	---	22	8.6	19	9.3	4.8	4.2	11
31	2.4	---	6.2	5.7	---	26	---	17	---	5.0	4.0	---
MEAN	3.08	8.89	6.76	6.69	7.58	13.3	17.7	50.6	18.3	6.71	4.70	7.52
MAX	4.6	28	11	9.5	22	27	27	121	29	15	5.9	25
MIN	2.4	2.7	4.5	4.8	2.7	7.4	8.6	7.8	9.3	4.6	4.0	2.1
IN.	.46	1.30	1.02	1.01	1.03	2.01	2.58	7.63	2.66	1.01	.71	1.10

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	6.44	11.3	18.6	12.0	15.7	23.4	30.9	20.5	11.4	8.91	5.90	7.74
MEAN	6.44	11.3	18.6	12.0	15.7	23.4	30.9	20.5	11.4	8.91	5.90	7.74
MAX	18.1	19.0	40.8	17.5	22.6	49.5	64.1	50.6	18.3	32.6	12.3	24.7
(WY)	1988	1986	1984	1987	1984	1983	1983	1989	1989	1984	1986	1987
MIN	2.31	2.07	5.46	6.69	7.58	10.5	3.84	9.28	3.54	3.80	3.62	2.63
(WY)	1985	1985	1985	1989	1989	1985	1985	1985	1987	1988	1983	1983

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	12.7	14.4
HIGHEST ANNUAL MEAN	21.4	1984
LOWEST ANNUAL MEAN	6.63	1985
HIGHEST DAILY MEAN	121	May 17
LOWEST DAILY MEAN	2.1	Sep 13
INSTANTANEOUS PEAK FLOW	135	May 17
INSTANTANEOUS PEAK STAGE	2.79	May 17
INSTANTANEOUS LOW FLOW	2.1	Sep 10
ANNUAL RUNOFF (INCHES)	22.54	25.52
10 PERCENTILE	25	32
50 PERCENTILE	6.9	8.7
95 PERCENTILE	2.7	2.4

PASSAIC RIVER BASIN

01379780 GREEN POND BROOK BELOW PICATINNY LAKE, AT PICATINNY ARSENAL, NJ

LOCATION.--Lat 40°56'56", long 74°33'29", Morris County, Hydrologic Unit 02030103, on left bank 100 ft upstream from bridge on Whitmore Avenue at Picatinny Arsenal, and 200 ft downstream from dam on Picatinny Lake.

DRAINAGE AREA.--9.16 mi².

PERIOD OF RECORD.--October 1984 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 694.91 ft above National Geodetic Vertical Datum of 1929 (U.S. Army, Picatinny Arsenal, benchmark).

REMARKS.--No estimated daily discharges. Records good. Several measurements of water temperature were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of April 5, 1984 reached an elevation of 699.0 ft above NGVD, 200 ft upstream of bridge on Whitmore Avenue.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	1.1	16	7.8	5.3	14	35	13	18	11	5.1	4.8
2	2.7	1.2	15	7.8	4.9	13	32	14	16	9.5	5.0	4.4
3	2.8	1.3	15	7.8	4.5	12	29	19	14	8.9	5.0	3.8
4	2.8	1.4	14	7.8	4.3	12	29	24	12	7.9	5.0	3.0
5	2.6	1.5	14	3.5	4.3	14	30	28	10	10	5.0	2.6
6	2.8	2.1	14	.63	4.3	15	32	100	10	14	4.9	2.6
7	2.7	2.6	13	.65	3.3	15	32	102	14	13	4.7	2.6
8	2.6	3.7	13	.71	2.6	13	30	92	20	21	4.6	2.6
9	2.3	4.8	12	.87	2.5	14	29	79	22	15	4.4	2.6
10	2.2	5.9	12	.98	2.1	14	27	83	33	12	4.6	2.6
11	2.0	6.3	12	1.1	1.6	12	25	102	28	10	4.3	2.6
12	1.8	5.7	12	1.2	1.5	11	23	97	24	8.7	4.4	2.6
13	1.7	7.8	11	1.4	2.0	10	22	85	29	8.0	4.6	2.4
14	1.7	18	11	1.5	2.6	10	19	72	27	7.6	4.8	2.2
15	1.7	16	10	2.2	2.7	10	17	61	30	6.5	5.0	2.0
16	1.7	15	10	11	2.8	10	21	73	36	5.4	5.3	1.1
17	1.7	14	9.9	14	3.1	10	25	157	33	6.0	5.3	.89
18	1.8	14	9.5	14	3.1	12	26	153	30	5.7	5.3	.90
19	1.9	13	9.3	14	3.2	14	25	124	26	5.6	5.2	.95
20	1.9	14	8.8	14	3.4	14	22	103	22	5.9	5.0	18
21	1.7	36	8.8	13	5.5	14	20	79	21	6.1	5.0	40
22	.89	30	8.3	13	18	14	19	48	22	5.9	4.9	33
23	1.0	23	8.3	12	26	14	17	53	23	6.1	4.7	22
24	1.1	20	8.3	12	26	19	16	64	50	5.9	4.6	24
25	1.1	17	8.3	11	22	31	15	55	32	6.1	4.6	21
26	1.1	16	8.3	11	19	33	15	48	25	5.8	4.6	22
27	1.1	15	8.3	10	17	32	14	40	20	5.7	4.6	22
28	1.1	18	8.3	10	16	32	14	35	18	5.7	5.1	21
29	1.2	18	8.0	9.9	---	30	14	32	15	5.4	5.3	20
30	1.1	17	7.8	9.4	---	28	13	17	12	5.3	5.3	19
31	1.1	---	7.8	7.2	---	32	---	15	---	5.3	5.2	---
MEAN	1.82	12.0	10.7	7.47	7.63	17.0	22.9	66.7	23.1	8.23	4.88	10.3
MAX	2.8	36	16	14	26	33	35	157	50	21	5.3	40
MIN	.89	1.1	7.8	.63	1.5	10	13	13	10	5.3	4.3	.89
IN.	.23	1.46	1.35	.94	.87	2.14	2.79	8.39	2.81	1.04	.61	1.26

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	6.69	15.3	20.5	12.4	14.4	19.4	23.4	23.6	11.0	4.99	6.40	12.6
MEAN	6.69	15.3	20.5	12.4	14.4	19.4	23.4	23.6	11.0	4.99	6.40	12.6
MAX	17.1	22.3	43.1	20.5	24.7	28.6	50.2	66.7	23.1	8.23	11.7	36.7
(WY)	1988	1987	1987	1987	1986	1986	1987	1989	1989	1989	1986	1987
MIN	.71	.27	5.28	6.98	7.63	10.6	2.48	9.64	2.23	2.02	4.65	3.48
(WY)	1985	1985	1985	1985	1989	1985	1985	1985	1987	1988	1988	1988

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	16.1	14.2
HIGHEST ANNUAL MEAN		19.3
LOWEST ANNUAL MEAN		6.35
HIGHEST DAILY MEAN	157	173
LOWEST DAILY MEAN	.63	.20
INSTANTANEOUS PEAK FLOW	180	309
INSTANTANEOUS PEAK STAGE	3.49	3.70
INSTANTANEOUS LOW FLOW	.57	---
ANNUAL RUNOFF (INCHES)	23.87	21.06
10 PERCENTILE	32	32
50 PERCENTILE	11	8.5
95 PERCENTILE	1.0	1.0

***** Indicates not enough data, therefore statistic is not computed

PASSAIC RIVER BASIN

71

01379790 GREEN POND BROOK AT WHARTON, NJ

LOCATION.--Lat 40°55'04", long 74°35'02", Morris County, Hydrologic Unit 02030103, on left bank 600 ft upstream from bridge on northbound lane of State Route 15, 0.2 mi northwest of Wharton, and 1.7 mi upstream from mouth.

DRAINAGE AREA.--12.6 mi².

PERIOD OF RECORD.--October 1982 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 680.26 ft above National Geodetic Vertical Datum of 1929 (U.S. Army, Picatinny Arsenal, bench mark).

REMARKS.--No estimated daily discharges. Records good. Some regulation from Lake Picatinny, Picatinny Arsenal sewage treatment plant, and flood gates located about 800 ft upstream of gage. Several measurements of water temperature were made during the year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.3	5.8	23	11	10	18	51	21	26	19	8.9	7.6
2	6.1	5.7	21	11	9.7	18	44	52	24	15	8.6	6.8
3	7.7	4.4	19	11	9.6	18	42	35	19	16	9.0	6.3
4	6.2	4.0	19	11	8.7	18	41	33	18	15	8.4	5.5
5	5.9	14	18	8.4	8.1	19	44	45	17	28	8.3	4.9
6	5.9	16	18	4.3	8.3	23	50	147	19	25	8.1	4.8
7	5.8	8.7	18	4.0	7.8	22	46	125	27	20	9.2	4.7
8	6.1	7.9	17	6.7	6.5	19	42	104	34	37	8.9	4.6
9	5.7	8.4	17	6.4	6.0	20	40	90	36	23	8.1	4.5
10	5.5	10	16	5.4	5.7	20	38	108	52	19	7.6	4.4
11	5.1	10	16	4.9	5.2	19	35	130	38	17	8.2	4.4
12	5.0	9.5	15	7.7	4.8	18	33	111	29	15	11	4.4
13	4.8	16	15	8.6	4.8	17	34	97	43	14	9.4	4.4
14	4.7	22	14	6.4	6.7	17	32	84	37	14	8.7	4.6
15	4.7	21	14	12	7.9	18	33	73	45	12	9.2	5.9
16	4.7	19	13	14	9.3	17	44	110	55	11	10	4.7
17	4.5	27	13	18	7.9	17	39	207	44	13	9.2	5.1
18	4.4	21	13	18	7.2	21	38	198	38	11	8.6	3.8
19	4.3	20	12	18	7.1	23	36	151	33	11	8.7	20
20	4.1	57	12	18	7.1	21	33	121	30	11	9.0	91
21	4.7	72	12	17	33	27	30	95	28	12	8.5	76
22	13	47	11	16	35	24	28	66	35	11	8.2	54
23	5.5	36	12	16	36	22	27	67	42	11	9.3	47
24	5.2	30	15	16	34	36	22	99	117	10	9.1	42
25	4.9	26	16	15	29	51	23	73	56	10	7.8	34
26	4.0	23	13	15	26	45	23	60	42	10	7.4	43
27	3.7	22	12	15	25	42	22	54	34	9.9	7.3	35
28	3.6	38	14	14	22	41	21	47	30	9.8	7.3	30
29	3.5	29	14	14	---	42	21	42	27	9.0	7.8	28
30	3.3	25	12	14	---	41	20	30	22	8.7	8.1	26
31	3.2	---	11	13	---	52	---	23	---	8.7	7.7	---
MEAN	5.20	21.8	15.0	11.9	13.9	26.0	34.4	87.0	36.6	14.7	8.57	20.6
MAX	13	72	23	18	36	52	51	207	117	37	11	91
MIN	3.2	4.0	11	4.0	4.8	17	20	21	17	8.7	7.3	3.8
IN.	.48	1.93	1.37	1.09	1.15	2.38	3.05	7.97	3.24	1.35	.78	1.82

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
MEAN	10.1	21.2	33.1	21.6	28.4	42.2	57.0	38.2	21.9	17.6	11.1	16.6
MAX	24.7	34.3	71.2	29.9	41.9	89.2	112	87.0	36.6	61.4	20.1	54.0
(WY)	1988	1986	1984	1987	1984	1983	1983	1989	1989	1984	1986	1987
MIN	4.54	4.23	11.7	11.3	13.9	17.8	8.96	16.9	6.65	7.72	7.68	4.73
(WY)	1985	1985	1985	1985	1989	1985	1985	1986	1987	1983	1983	1983

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	24.7	26.5
HIGHEST ANNUAL MEAN		40.6
LOWEST ANNUAL MEAN		12.5
HIGHEST DAILY MEAN	207	512
LOWEST DAILY MEAN	3.2	2.8
INSTANTANEOUS PEAK FLOW	229	572
INSTANTANEOUS PEAK STAGE	3.89	5.11
INSTANTANEOUS LOW FLOW	2.8	2.4
ANNUAL RUNOFF (INCHES)	26.62	28.60
10 PERCENTILE	50	57
50 PERCENTILE	17	17
95 PERCENTILE	4.1	4.4

1984

1985

Apr 6 1984

Nov 25 1984

Apr 5 1984

Apr 5 1984

Sep 29 1983

01380500 ROCKAWAY RIVER ABOVE RESERVOIR, AT BOONTON, NJ

LOCATION.--Lat 40°54'06", long 74°24'40", Morris County, Hydrologic Unit 02030103, on right bank, under CONRAIL railroad bridge, just downstream of bridge on Morris Avenue in Boonton, 1.8 mi upstream from dam at Boonton Reservoir.

DRAINAGE AREA.--116 mi².

PERIOD OF RECORD.--October 1937 to current year. Monthly discharge only for October 1937, published in WSP 1302.

REVISED RECORDS.--WRD-NJ 1974: 1938(M). WDR NJ-78-1: 1949(M), 1952(M), 1968(M), 1971(M), 1973(P), 1974(M), 1977(M).

GAGE.--Water-stage recorder, crest-stage gage, and concrete control. Datum of gage is 364.47 ft above National Geodetic Vertical Datum of 1929 (levels from New Jersey Geological Survey bench mark).

REMARKS.--Records good except for estimated daily discharges, which are fair. Flow regulated by Splitrock Reservoir on Beaver Brook, 14.5 mi above station (see Passaic River basin, reservoirs in). Town of Boonton diverts water for municipal supply from Taylortown Reservoir on Stony Brook, capacity, 75,000,000 gal and by pumping from wells in vicinity of Boonton. The mean diversion during the water year from Taylortown Reservoir was 0.93 ft³/s. Rockaway Valley trunk sewer bypasses the station (see station 01381000). Several measurements of water temperature were made during the year. Satellite telemeter at station.

COOPERATION.--Gage-height record collected in cooperation with Jersey City, Bureau of Water.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	92	279	111	141	168	655	167	279	191	73	54
2	41	148	243	114	134	155	453	639	254	169	72	50
3	72	97	215	112	131	151	390	715	223	152	89	46
4	56	74	197	e107	122	152	384	412	192	144	76	43
5	46	155	182	e102	102	152	438	373	176	263	72	41
6	40	385	178	e97	99	202	499	1600	190	399	65	60
7	40	228	169	92	97	188	478	1470	294	251	71	66
8	56	159	164	120	90	156	409	1020	522	322	77	63
9	53	131	157	154	80	156	379	789	388	241	68	56
10	45	117	149	119	73	154	354	827	572	169	67	48
11	43	111	144	113	78	154	310	1330	443	148	83	48
12	43	102	115	166	75	164	280	1070	299	128	173	43
13	36	152	129	236	71	157	270	869	447	128	158	49
14	35	219	130	175	96	147	308	729	387	126	110	55
15	33	166	129	238	115	157	296	633	416	114	92	109
16	34	141	122	216	154	159	565	877	557	109	93	68
17	33	258	111	176	118	143	463	2080	462	157	100	103
18	33	243	102	151	101	161	369	1820	358	124	78	73
19	32	170	103	146	95	232	325	1320	290	112	85	154
20	33	499	98	143	88	173	287	998	246	157	102	1210
21	34	1200	105	124	303	228	262	806	237	171	83	1250
22	220	684	109	110	601	229	242	644	333	134	101	657
23	113	474	113	118	387	178	221	533	702	118	87	468
24	79	377	155	112	272	253	205	887	740	102	126	368
25	70	318	239	120	215	587	196	782	621	93	75	260
26	56	276	157	117	193	428	196	574	459	88	64	333
27	50	241	126	143	188	340	188	501	370	83	54	330
28	45	469	129	129	180	301	175	456	298	81	51	241
29	47	424	165	119	---	283	170	379	259	73	54	196
30	46	318	132	126	---	301	174	326	222	69	59	170
31	48	---	118	147	---	534	---	289	---	68	57	---
MEAN	53.3	281	150	137	157	224	331	836	375	151	84.4	224
MAX	220	1200	279	238	601	587	655	2080	740	399	173	1250
MIN	32	74	98	92	71	143	170	167	176	68	51	41

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	120	223	274	257	277	394	396	278	183	132	119	125
MEAN	120	223	274	257	277	394	396	278	183	132	119	125
MAX	522	694	706	855	590	798	979	836	847	553	447	484
(WY)	1956	1973	1974	1979	1973	1977	1983	1989	1972	1975	1955	1971
MIN	23.7	63.7	67.2	74.8	107	151	87.0	90.5	35.3	18.1	16.6	16.8
(WY)	1965	1962	1940	1981	1940	1985	1985	1965	1965	1966	1957	1964

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW
HIGHEST ANNUAL MEAN
LOWEST ANNUAL MEAN
HIGHEST DAILY MEAN
LOWEST DAILY MEAN
INSTANTANEOUS PEAK FLOW
INSTANTANEOUS PEAK STAGE
INSTANTANEOUS LOW FLOW
10 PERCENTILE
50 PERCENTILE
95 PERCENTILE

250
2080
32
2350
5.59
1.7a
531
157
45

May 17
Oct 19
May 17
May 17
Jan 4

231
396
88.3
4220
10
5590
7.23

504
156
32

1952
1965
Jan 25 1979
Aug 10 1966
Apr 5 1984
Apr 5 1984

a Ice jam upstream
e Estimated

PASSAIC RIVER BASIN

73

01381000 ROCKAWAY RIVER BELOW RESERVOIR, AT BOONTON, NJ

LOCATION.--Lat 40°53'47", long 74°23'36", Morris County, Hydrologic Unit 02030103, on right bank 2,000 ft downstream from Boonton Reservoir Dam at Boonton, and 0.4 mi upstream at bridge on Greenback Road.

DRAINAGE AREA.--119 mi².

PERIOD OF RECORD.--March to December 1903; January, February 1904 (gage height only); January 1906 to September 1950 (monthly discharge only, published in WSP 1302) October 1950 to current year (figures of daily discharge for October 1950 to September 1954 published in Special Report 16 of New Jersey Department of Environmental Protection). Published as "near Boonton" 1903-4, and as "at Boonton" 1906-37.

REVISED RECORDS.--WSP 1902: 1951-54. WDR NJ-79-1: 1949(M), 1952(M), 1968(M), 1970-74(M), 1977(M).

GAGE.--Water-stage recorder. Concrete control since Nov. 5, 1936. Datum of gage is 195.68 ft above National Geodetic Vertical Datum of 1929 (levels from New Jersey Geological Survey bench mark). Mar. 15, 1903 to Feb. 2, 1904, nonrecording gage at site 1.9 mi downstream at different datum. Jan. 1, 1906 to Mar. 3, 1918, nonrecording gage on Boonton Reservoir Dam 2,000 ft upstream at datum 305.25 ft National Geodetic Vertical Datum of 1929 (levels from New Jersey Geological Survey bench mark).

REMARKS.--No estimated daily discharges. Records good. Records represent flow in river only. Sewage effluent enters river about 600 ft below station (records given herein). Flow regulated by Boonton Reservoir (see Passaic River basin, reservoirs in) 2,000 ft upstream of station, and by Splitrock Reservoir (see Passaic River basin, reservoirs in) 16.5 mi above station. Water diverted from Boonton Reservoir for municipal supply of Jersey City (see Passaic River basin, diversions). Several measurements of water temperature were made during the year. Satellite telemeter at station.

COOPERATION.--Gage-height record collected in cooperation with and record of sewage effluent furnished by Jersey City, Bureau of Water.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	12	225	38	66	107	605	77	194	117	11	10
2	11	11	189	39	59	88	435	403	178	93	11	10
3	11	11	153	36	59	81	322	772	142	71	11	10
4	11	11	126	31	53	78	305	393	116	58	11	10
5	11	12	109	11	36	78	353	299	87	118	11	10
6	11	11	102	10	28	116	427	1560	85	324	11	10
7	11	12	91	10	23	124	421	1910	161	215	11	10
8	11	13	130	23	19	93	348	1180	409	204	11	10
9	9.9	12	153	61	9.4	86	302	825	348	187	11	10
10	9.9	11	156	52	9.5	78	271	803	463	119	11	10
11	10	11	145	39	9.8	77	226	1420	410	72	11	10
12	11	11	117	56	9.9	82	196	1260	251	46	12	10
13	11	12	118	137	9.9	82	179	945	316	38	11	9.9
14	11	11	126	117	10	69	210	734	334	33	11	12
15	11	11	132	140	10	69	209	605	321	28	11	10
16	11	11	121	155	26	82	442	807	447	23	11	10
17	11	12	114	119	45	79	439	2380	420	50	11	10
18	11	11	107	87	33	73	316	2310	305	48	13	9.9
19	11	11	103	78	25	130	249	1570	220	34	12	16
20	11	23	102	76	17	115	209	1110	171	39	11	21
21	11	700	106	56	112	56	176	815	151	86	11	948
22	11	831	111	34	522	11	151	613	213	64	10	776
23	11	495	95	39	402	11	131	478	588	43	10	462
24	11	345	87	40	252	14	119	769	659	27	10	313
25	11	268	153	39	171	65	102	802	635	18	10	209
26	11	219	119	42	141	317	98	563	425	12	10	226
27	11	184	68	57	128	262	92	451	323	12	10	265
28	11	354	58	54	115	218	79	401	231	11	10	187
29	11	398	74	44	---	192	75	325	180	11	10	135
30	11	287	62	47	---	198	80	260	146	11	10	93
31	11	---	49	64	---	408	---	216	---	11	10	---
MEAN	10.9	144	116	59.1	85.7	114	252	873	298	71.7	10.8	128
MAX	11	831	225	155	522	408	605	2380	659	324	13	948
MIN	9.9	11	49	10	9.4	11	75	77	85	11	10	9.9
(†)	11.0	12.7	11.8	11.6	11.5	12.4	14.1	19.7	15.9	13.2	11.9	13.1

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	39.4	91.6	163	148	169	268	294	189	98.2	53.2	40.7	50.7
MEAN	39.4	91.6	163	148	169	268	294	189	98.2	53.2	40.7	50.7
MAX	408	483	582	692	499	654	977	873	671	445	243	346
(WY)	1956	1973	1984	1979	1973	1983	1983	1989	1972	1984	1967	1960
MIN	.23	.43	.35	.39	1.49	13.9	11.4	18.6	.40	.25	.29	.28
(WY)	1964	1966	1966	1966	1966	1981	1985	1955	1957	1966	1966	1957

PASSAIC RIVER BASIN

01381000 ROCKAWAY RIVER BELOW RESERVOIR, AT BOONTON, NJ--Continued

SUMMARY STATISTICS	FOR 1989 WATER YEAR		FOR PERIOD OF RECORD	
AVERAGE FLOW	181		133	
(†)	13.2		---	
HIGHEST ANNUAL MEAN			296a	1952
LOWEST ANNUAL MEAN			7.19a	1965
HIGHEST DAILY MEAN	2380	May 17	3850	Apr 6 1984
LOWEST DAILY MEAN	9.4	Feb 9	.00	Jan 19 1959
INSTANTANEOUS PEAK FLOW	2790	May 17	7560b	Oct 10 1903
INSTANTANEOUS PEAK STAGE	6.61	May 17	---	
INSTANTANEOUS LOW FLOW	7.4	Feb 8	.00	Many days
10 PERCENTILE	451		365	
50 PERCENTILE	75		33	
95 PERCENTILE	9.9		.35	

a Since 1950

b Maximum daily

† Sewage effluent, in cubic feet per second, from plant at Rockaway Valley Regional Sewage Authority

PASSAIC RIVER BASIN

75

01381200 ROCKAWAY RIVER AT PINE BROOK, NJ

LOCATION.--Lat 40°51'29", long 74°20'53", Morris County, Hydrologic Unit 02030103, at bridge on U.S. Route 46 at intersection with New Road in Pine Brook, and 1.1 mi upstream of mouth.

DRAINAGE AREA.--136 mi².

PERIOD OF RECORD.--Water years 1963 to current year.

COOPERATION.--Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988 17...	1030	29E	500	8.0	14.0	9.7	93	0.5	790	80
FEB 1989 08...	1000	41E	416	7.7	1.5	12.7	90	4.5	350	8
APR 12...	1100	230E	246	7.7	8.0	13.3	111	0.5	50	<20
JUN 01...	1230	190E	202	7.5	21.0	7.8	88	2.4	790	2400
JUL 27...	0930	30E	448	7.9	23.5	5.9	70	1.2	1700	500
AUG 22...	1030	27E	435	7.9	21.5	6.3	72	0.6	1400	800

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988 17...	130	32	13	40	5.4	83	30	64	0.2
FEB 1989 08...	120	28	11	36	3.7	63	32	60	0.4
APR 12...	68	17	6.1	20	1.5	40	17	36	0.1
JUN 01...	58	15	5.1	15	1.2	35	14	25	0.2
JUL 27...	130	32	11	35	4.3	73	28	53	0.2
AUG 22...	130	32	11	34	4.2	80	28	55	0.2

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOROUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988 17...	13	247	0.160	2.67	0.75	1.4	4.1	0.79	4.7
FEB 1989 08...	12	221	0.014	4.68	0.06	0.50	5.2	0.52	3.9
APR 12...	7.1	129	0.006	0.86	<0.05	0.38	1.2	0.10	3.5
JUN 01...	8.0	105	0.021	0.89	0.13	0.62	1.5	0.16	4.9
JUL 27...	12	219	0.037	4.90	0.06	0.50	5.4	0.87	4.5
AUG 22...	12	224	0.030	5.55	0.05	0.79	6.3	0.88	4.3

PASSAIC RIVER BASIN

01381200 ROCKAWAY RIVER AT PINE BROOK, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SULFIDE TOTAL (MG/L AS S)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE)	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)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
JUN 1989 01...	1230	<0.5	20	<1	<10	30	<1	2	8
DATE		IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	PHENOLS TOTAL (UG/L)
JUN 1989 01...		650	17	100	<0.10	9	<1	20	1

01381500 WHIPPANY RIVER AT MORRISTOWN, NJ

LOCATION.--Lat 40°48'26", long 74°27'22", Morris County, Hydrologic Unit 02030103, on left bank at Morristown sewage-disposal plant, 0.8 mi downstream from Morristown, and 9.0 mi upstream from mouth.

DRAINAGE AREA.--29.4 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1921 to current year.

REVISED RECORDS.--WSP 781: Drainage area. WSP 1552: 1922-23(M), 1924, 1925-27(M) 1928-29, 1930-32(M), 1933-34. WRD-NJ 1974: 1965. WDR NJ-84-1: 1971(M). WDR NJ-88-1: Longitude.

GAGE.--Water-stage recorder and crest-stage gage. Concrete control since July 1, 1936. Datum of gage is 260.01 ft above National Geodetic Vertical Datum of 1929 (levels from New Jersey Geological Survey bench mark). Prior to July 16, 1930, nonrecording gage at same site and datum.

REMARKS.--Records good. Flow occasionally regulated by operation of gates in Pocahontas Dam, 2.5 mi above station. Diurnal fluctuations from unknown source at low flow. Several measurements of water temperature, other than those published, were made during the year. Satellite telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	53	52	32	37	42	283	55	73	52	32	23
2	28	46	47	33	35	40	122	406	68	48	31	22
3	34	28	45	33	38	39	108	204	61	46	38	21
4	24	24	42	30	34	39	113	83	60	45	30	20
5	22	62	41	26	32	41	156	119	57	137	32	21
6	21	94	40	29	33	54	160	753	65	125	28	22
7	21	32	39	30	32	44	126	271	142	70	45	21
8	36	27	38	51	31	39	98	171	187	123	30	21
9	25	25	36	54	29	40	87	143	124	54	28	21
10	23	24	36	38	27	41	78	290	221	47	27	20
11	22	24	35	35	28	43	73	447	80	49	52	20
12	21	22	30	57	28	46	70	231	62	42	98	19
13	20	55	30	67	28	42	75	194	196	48	52	19
14	20	51	32	42	46	40	81	161	91	43	36	47
15	20	30	33	94	49	42	109	146	134	38	33	45
16	20	27	31	56	55	41	225	453	207	56	32	35
17	21	108	30	42	37	38	117	888	95	77	37	45
18	21	58	29	38	32	63	83	352	71	44	28	26
19	20	35	30	38	31	72	75	251	64	40	34	241
20	20	370	30	37	31	45	69	203	60	87	34	757
21	43	376	34	33	192	83	65	149	65	60	30	349
22	108	92	34	31	216	61	63	e138	97	45	34	80
23	35	58	40	32	81	46	60	e165	241	41	29	70
24	31	51	68	32	55	120	58	309	151	37	35	50
25	27	45	84	32	46	197	56	170	86	35	25	44
26	23	42	42	35	45	83	56	121	71	34	24	104
27	22	45	36	42	46	64	54	125	64	33	22	59
28	22	228	47	36	44	60	51	107	63	36	23	45
29	22	101	55	34	---	57	52	84	60	31	31	37
30	21	59	38	45	---	101	58	79	55	30	28	34
31	20	---	34	41	---	244	---	77	---	31	23	---
MEAN	26.9	76.4	39.9	40.5	50.6	64.7	96.0	237	102	54.3	34.2	77.9
MAX	108	376	84	94	216	244	283	888	241	137	98	757
MIN	20	22	29	26	27	38	51	55	55	30	22	19
IN.	1.06	2.90	1.57	1.59	1.79	2.54	3.65	9.29	3.89	2.13	1.34	2.96

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	30.2	44.5	53.1	56.5	64.4	85.7	87.1	66.0	45.8	38.3	35.0	34.5
MAX	89.7	132	157	211	147	215	231	237	214	185	158	123	
(WY)	1956	1933	1984	1979	1973	1936	1983	1989	1972	1975	1942	1971	
MIN	8.72	13.3	14.2	16.9	23.5	28.1	30.2	24.4	14.6	10.3	8.02	7.25	
(WY)	1931	1937	1940	1922	1940	1981	1985	1941	1965	1965	1932	1932	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	75.1	53.4
HIGHEST ANNUAL MEAN		98.5
LOWEST ANNUAL MEAN		23.3
HIGHEST DAILY MEAN	888	1510
LOWEST DAILY MEAN	19	4.2
INSTANTANEOUS PEAK FLOW	1380	2800
INSTANTANEOUS PEAK STAGE	6.07	8.6
INSTANTANEOUS LOW FLOW	18	2.8
ANNUAL RUNOFF (INCHES)	34.68	24.64
10 PERCENTILE	158	105
50 PERCENTILE	44	36
95 PERCENTILE	22	13

e Estimated

PASSAIC RIVER BASIN

01381500 WHIPPANY RIVER AT MORRISTOWN, NJ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1923-24, 1926, 1962 to current year.

COOPERATION...Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988 24...	1130	34	237	7.5	11.0	8.9	82	13	7000	>24000
JAN 1989 30...	1230	51	321	7.8	5.0	13.0	104	7.8	5400	9200
APR 13...	1100	66	297	8.2	9.5	14.5	126	1.5	490	20
MAY 23...	1230	130	251	7.8	16.0	9.7	99	2.1	460	170
JUL 27...	1100	33	344	8.1	25.0	9.5	116	2.1	2400	790
AUG 17...	1200	36	323	8.1	24.0	9.3	111	3.3	<200	400

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988 24...	74	19	6.5	15	2.6	47	19	27	0.1
JAN 1989 30...	75	19	6.7	29	2.0	46	23	53	0.2
APR 13...	79	20	7.1	21	1.8	43	15	42	0.1
MAY 23...	74	19	6.5	17	1.7	39	17	34	0.1
JUL 27...	110	27	9.4	23	2.5	64	18	45	0.1
AUG 17...	110	27	9.2	23	2.5	66	17	41	0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOROUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988 24...	12	129	0.041	0.55	0.09	0.88	1.4	0.24	8.7
JAN 1989 30...	11	171	0.043	1.40	0.31	0.95	2.4	0.30	4.9
APR 13...	14	147	0.037	1.25	0.15	0.44	1.7	0.25	2.4
MAY 23...	16	135	0.033	1.18	0.18	0.59	1.8	0.14	2.8
JUL 27...	18	181	0.090	1.88	<0.05	0.37	2.3	0.24	3.1
AUG 17...	19	178	0.104	2.02	0.07	0.53	2.6	0.25	3.2

PASSAIC RIVER BASIN

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01381500 WHIPPANY RIVER AT MORRISTOWN, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SULFIDE TOTAL (MG/L AS S)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE)	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)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1988 24...	1130	<0.5	30	1	<10	40	<1	2	12

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	PHENOLS TOTAL (UG/L)
OCT 1988 24...	1000	<5	110	<0.10	1	<1	40	3

PASSAIC RIVER BASIN

01381800 WHIPPANY RIVER NEAR PINE BROOK, NJ

LOCATION.--Lat 40°50'42", long 74°20'51", Morris County, Hydrologic Unit 02030103, at bridge on New Road, 0.3 mi southwest of overpass of Interstate 280, 0.4 mi upstream of Rockaway River, and 1.4 mi southwest of Pine Brook.

DRAINAGE AREA.--68.5 mi².

PERIOD OF RECORD.--Water years 1963 to current year.

COOPERATION.--Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988 17...	1300	43E	515	7.9	13.5	8.6	82	3.3	230	490
FEB 1989 08...	1300	60E	549	7.7	2.5	13.3	97	3.9	<20	<20
APR 10...	1115	132E	325	7.5	9.0	9.0	78	3.0	20	<20
JUN 01...	1030	124E	328	7.3	19.5	5.3	58	5.7	330	490
JUL 27...	0830	63E	463	7.7	25.0	4.5	55	4.8	500	500
AUG 22...	1230	65E	350	7.7	23.0	5.8	68	2.7	790	1300

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988 17...	160	39	15	35	3.1	102	37	60	0.1
FEB 1989 08...	140	36	13	50	2.9	96	32	93	0.1
APR 10...	94	24	8.2	27	1.9	60	25	46	0.1
JUN 01...	100	26	8.8	22	2.2	64	19	41	0.1
JUL 27...	140	35	12	33	3.3	83	30	58	0.1
AUG 22...	110	28	9.4	25	2.5	74	22	41	0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOROUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988 17...	15	265	0.025	6.94	<0.05	0.81	7.8	1.00	5.3
FEB 1989 08...	14	299	0.045	1.60	1.85	2.2	3.8	0.42	4.0
APR 10...	11	179	0.030	1.01	0.56	1.2	2.2	0.22	5.5
JUN 01...	14	171	0.162	1.57	0.73	1.6	3.1	0.41	10
JUL 27...	17	238	0.216	2.73	0.59	1.2	4.0	0.81	6.0
AUG 22...	14	186	0.111	1.86	0.29	0.95	2.8	0.40	6.8

PASSAIC RIVER BASIN

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01381800 WHIPPANY RIVER NEAR PINE BROOK, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SULFIDE TOTAL (MG/L AS S)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE)	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)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1988 17...	1300	<0.5	<10	1	<10	100	1	6	10

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	PHENOLS TOTAL (UG/L)
OCT 1988 17...	560	<5	60	<0.10	6	<1	20	3

PASSAIC RIVER BASIN

01381900 PASSAIC RIVER AT PINE BROOK, NJ

LOCATION.--Lat 40°51'45", Long 74°19'18", Morris County, Hydrologic Unit 02030103, on downstream left wingwall of bridge on U.S. Route 46, 0.5 mi east of Pine Brook, and 1.3 mi downstream from Rockaway River.

DRAINAGE AREA.--349 mi².

PERIOD OF RECORD.--Occasional low-flow measurements, water years 1963-69, 1973, and annual maximum, water years 1966-75, 1978-79. October 1979 to current year. Feb. 19 to Aug. 24, 1939 in files of U.S. Army Corps of Engineers, New York District.

REVISED RECORDS.--WDR NJ-77-1: 1967(M).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 149.26 ft above National Geodetic Vertical Datum of 1929. December 1965 to September 1979, crest-stage gage at same site at datum 10.00 ft higher. Feb. 19 to Aug. 24, 1939, water-stage recorder at present NJ Route 506 bridge, 1,600 ft upstream from gage, operated by U.S. Army Corps of Engineers, New York District at datum 13.05 ft higher.

REMARKS.--No estimated daily discharges. Records fair except those above 1,000 ft³/s, which are poor. Flow regulated by Boonton and Splitrock Reservoirs (see Passaic River basin, reservoirs in) and many small lakes. Water diverted from Boonton Reservoir for municipal supply of Jersey City (see Passaic River basin, diversions). Several measurements of water temperature were made during the year. Satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1810, according to State Geologist's report for 1904, 23.2 ft, Oct. 10, 1903, present datum, from King Survey of highwater marks at present NJ Route 506 bridge, 1,600 ft upstream from gage. Floods of Mar. 13, 1936 and Sept. 24, 1938 reached stages of 20.8 ft and 19.4 ft respectively, at present NJ Route 506 bridge and present datum. Flood of July 23, 1945 reached a stage of 22.3 ft at present site and datum according to U.S. Army Corps of Engineers; minimum observed, 41.1 ft³/s, Sept. 22, 1964.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	130	224	1360	233	344	596	1440	453	693	420	175	141
2	131	456	1200	210	337	490	1660	776	584	356	175	128
3	183	352	1040	213	335	415	1630	1330	498	311	217	116
4	162	278	858	207	333	375	1520	1690	436	278	203	108
5	147	279	680	205	288	365	1420	1660	388	419	188	108
6	138	548	495	205	243	408	1430	2080	378	849	171	112
7	134	494	388	205	215	471	1470	3130	454	930	182	113
8	181	344	353	196	195	472	1440	3310	739	840	183	112
9	178	280	359	327	172	455	1360	3010	961	752	161	109
10	152	248	352	315	146	398	1260	2810	1240	605	153	106
11	143	230	330	266	140	397	1130	3190	1460	473	213	105
12	138	218	322	262	140	415	957	3420	1450	370	482	105
13	136	235	322	489	140	430	796	3270	1430	314	578	103
14	134	383	322	494	188	420	717	2970	1500	316	426	120
15	133	335	276	545	247	406	685	2640	1510	285	292	398
16	132	288	260	650	358	389	947	2620	1590	257	247	307
17	132	406	253	608	366	371	1240	3790	1630	425	295	378
18	134	622	253	514	296	375	1330	4870	1490	429	216	298
19	134	606	237	416	232	538	1240	4920	1260	357	202	368
20	133	796	219	350	199	522	1070	4250	996	321	245	1200
21	140	1580	227	319	364	565	886	3570	793	407	192	2060
22	449	2330	249	241	876	591	731	2990	668	361	201	2660
23	444	2190	267	212	1230	526	609	2500	751	310	191	2750
24	314	2040	322	207	1490	538	508	2310	1030	265	214	2640
25	264	1810	497	204	1330	904	441	2270	1210	239	188	2360
26	218	1540	488	211	1110	1130	403	2110	1210	221	164	2160
27	195	1290	384	251	901	1230	386	1840	1050	205	143	1980
28	182	1340	329	262	731	1150	363	1580	846	207	127	1730
29	176	1520	397	242	---	1010	335	1330	663	196	135	1440
30	170	1530	344	251	---	900	435	1100	513	183	176	1160
31	165	---	276	331	---	1140	---	866	---	171	161	---
MEAN	181	826	441	311	462	593	995	2537	981	389	222	849
MAX	449	2330	1360	650	1490	1230	1660	4920	1630	930	578	2750
MIN	130	218	219	196	140	365	335	453	378	171	127	103

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	267	525	743	504	766	916	1332	908	554	412	226	282
MAX	531	922	2286	797	1221	2067	2842	2537	1482	1485	474	849
(WY)	1980	1986	1984	1987	1984	1983	1983	1989	1984	1984	1986	1989
MIN	134	161	107	105	211	272	161	380	188	168	117	91.0
(WY)	1981	1981	1981	1981	1980	1981	1985	1986	1981	1980	1981	1980

01381900 PASSAIC RIVER AT PINE BROOK, NJ--Continued

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	733		618	
HIGHEST ANNUAL MEAN			1125	1984
LOWEST ANNUAL MEAN			276	1981
HIGHEST DAILY MEAN	4920	May 19	7910	Apr 7 1984
LOWEST DAILY MEAN	103	Sep 13	72	Sep 29 1980
INSTANTANEOUS PEAK FLOW	5100	May 18	8000	Apr 7 1984
INSTANTANEOUS PEAK STAGE	20.50	May 18	22.90 ^a	Apr 7 1984
INSTANTANEOUS LOW FLOW	101	Sep 13	70	Sep 29 1980
10 PERCENTILE	1660		1520	
50 PERCENTILE	388		336	
95 PERCENTILE	133		102	

^a Affected by backwater

PASSAIC RIVER BASIN

01382000 PASSAIC RIVER AT TWO BRIDGES, NJ

LOCATION.--Lat 40°53'40", Long 74°16'23", Passaic County, Hydrologic Unit 02030103, at bridge on Two Bridges Road in Two Bridges, 50 ft upstream from Pompton River.

DRAINAGE AREA.--361 mi².

PERIOD OF RECORD.--Water years 1962 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: June 1969 to September 1974.

pH: June 1969 to September 1974.

WATER TEMPERATURES: October 1962 to September 1974.

DISSOLVED OXYGEN: June 1969 to September 1974.

COOPERATION.--Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	
OCT 1988													
20...	1015	E130	664	7.8	13.0	3.9	37	19	20	<20	170	40	
NOV 22...	0900	E2600	167	6.8	6.5	7.5	60	6.0	--	--	52	13	
DEC 14...	1120	E340	415	7.4	0.5	11.2	78	5.7	--	--	110	27	
JAN 1989													
18...	1200	E550	376	7.5	2.0	12.2	88	4.8	40	27	88	22	
FEB 16...	1145	E390	630	7.8	4.0	10.7	80	3.6	--	--	130	32	
MAR 21...	1330	E630	580	7.6	6.5	10.1	83	3.3	20	20	110	27	
APR 14...	1100	E780	336	7.5	10.0	10.0	88	6.6	--	--	83	21	
MAY 25...	1000	E2600	184	7.2	17.5	3.3	35	4.2	--	--	61	16	
JUN 13...	1030	E1600	195	7.2	20.0	5.3	59	2.6	--	--	61	16	
26...	1400	E1350	235	7.3	24.5	5.8	70	2.4	--	--	70	18	
JUL 19...	1300	E370	320	7.6	21.5	4.7	54	6.0	<200	<200	89	23	
AUG 14...	1100	E460	290	7.3	21.5	4.7	53	2.3	330	330	76	20	
SEP 15...	1300	E470	735	7.8	23.0	4.0	47	7.2	--	--	160	39	
28...	1300	E1900	190	7.2	13.5	5.4	51	4.2	--	--	--	--	
DATE		MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)
OCT 1988													
20...	16	75	6.2	112	50	100	0.1	16	400	0.220	0.220	5.20	
NOV 22...	4.7	13	2.5	29	29	17	0.1	7.5	109	0.040	0.060	0.800	
DEC 14...	10	34	3.4	77	32	53	0.1	14	233	0.030	0.020	2.00	
JAN 1989													
18...	8.1	38	2.9	52	28	65	0.1	12	215	0.030	<0.010	1.40	
FEB 16...	11	64	4.0	74	37	110	0.1	10	325	0.050	0.060	1.80	
MAR 21...	9.8	68	2.7	58	34	110	0.1	9.0	304	0.030	0.030	1.30	
APR 14...	7.5	29	2.4	48	24	46	0.1	8.2	174	0.030	0.030	1.10	
MAY 25...	5.1	15	1.0	40	15	23	0.1	7.3	109	0.040	0.040	0.500	
JUN 13...	5.2	16	2.0	41	14	24	0.1	10	116	0.060	0.050	0.700	
26...	6.0	18	1.9	45	16	27	0.1	9.9	128	0.050	0.060	0.800	
JUL 19...	7.7	25	2.8	62	22	37	0.1	13	178	0.140	0.140	2.00	
AUG 14...	6.4	26	2.4	48	24	35	0.1	9.9	160	0.090	0.080	1.30	
SEP 15...	14	65	6.8	97	52	93	0.2	16	370	0.270	0.260	5.20	
28...	--	--	--	39	15	20	0.1	--	--	0.050	0.050	0.600	

01382000 PASSAIC RIVER AT TWO BRIDGES, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHOROUS TOTAL (MG/L AS P)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, TOTAL (MG/L AS P)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDED TOTAL (MG/L AS C)
OCT 1988												
20...	5.00	2.70	2.70	3.5	3.2	8.7	1.40	1.30	1.20	1.20	9.2	0.6
NOV												
22...	0.810	0.160	0.150	1.1	0.70	1.9	0.300	0.200	0.180	0.180	6.6	1.1
DEC												
14...	2.10	1.90	1.80	2.5	2.5	4.5	0.600	0.490	0.520	0.450	3.8	0.3
JAN 1989												
18...	1.40	0.870	0.870	1.3	1.1	2.7	0.380	0.310	0.300	0.270	5.1	0.9
FEB												
16...	1.90	2.90	2.40	3.5	3.2	5.3	0.610	0.500	0.510	0.360	4.8	0.6
MAR												
21...	1.50	1.10	1.00	1.7	1.6	3.0	0.500	0.310	0.320	0.280	4.7	0.7
APR												
14...	1.20	0.530	0.530	1.3	1.0	2.4	0.270	0.200	0.200	0.180	5.2	0.8
MAY												
25...	0.400	0.110	0.110	0.80	0.60	1.3	0.220	0.180	0.160	0.160	6.3	0.6
JUN												
13...	0.750	0.190	0.210	1.1	0.70	1.8	0.320	0.180	0.220	0.160	7.3	0.7
26...	0.750	0.190	0.190	0.60	0.50	1.4	0.190	0.130	0.190	0.130	5.8	1.2
JUL												
19...	1.90	0.640	0.630	1.4	1.6	3.4	0.490	0.250	0.290	0.190	5.2	0.3
AUG												
14...	1.40	0.470	0.440	1.2	1.1	2.5	0.480	0.230	0.290	0.240	5.5	1.0
SEP												
15...	4.60	1.90	1.90	2.6	2.4	7.8	1.60	1.00	1.10	1.00	4.6	0.1
28...	0.620	0.130	0.110	0.90	0.70	1.5	0.210	0.140	0.200	0.160	9.4	0.6

01382000 PASSAIC RIVER AT TWO BRIDGES, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SULFIDE TOTAL (MG/L AS S)	NITRO- GEN, NH4 + ORG. TOT IN BOT MAT (MG/KG AS N)	CARBON, INOR- GANIC, TOT IN BOT MAT (G/KG AS C)	CARBON, INORG + ORGANIC TOT. IN BOT MAT (GM/KG AS C)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC TOTAL IN BOT- TOM MA- TERIAL (UG/G AS AS)	BERYL- LITUM, TOTAL RECOV- ERABLE (UG/L AS BE)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CD)
OCT 1988 20...	1015	--	200	0.1	1.8	--	--	2	--	--	--	<10
MAY 1989 25...	1000	<0.5	--	--	--	20	<1	--	<10	80	<1	--

DATE	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, RECOVER. FM BOTTOM MATERIAL (UG/G)	COBALT, RECOVER. FM BOTTOM MATERIAL (UG/G AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, RECOVER. FM BOTTOM MATERIAL (UG/G AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, RECOVER. FM BOTTOM MATERIAL (UG/G AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, RECOVER. FM BOTTOM MATERIAL (UG/G AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, RECOVER. FM BOTTOM MATERIAL (UG/G)
OCT 1988											
20...	--	6	<60	--	6	--	7300	--	<100	--	81
MAY 1989											
25...	1	--	--	5	--	570	--	10	--	60	--

DATE	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY RECOV. FM BOT- TOM MA- TERIAL (UG/G AS HG)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	NICKEL, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SELE- NIUM, TOTAL IN BOT- TOM MA- TERIAL (UG/G)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS ZN)	PHENOLS TOTAL (UG/L)	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PCN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
OCT 1988											
20...	--	0.03	--	<100	--	<1	--	40	--	3	<1.0
MAY 1989											
25...	<0.10	--	2	--	<1	--	<10	--	1	--	--

[illegible][illegible]

01382500 PEQUANNOCK RIVER AT MACOPIN INTAKE DAM, NJ

LOCATION.--Lat 41°01'10", long 74°24'11", revised, Morris County, Hydrologic Unit 02030103, on left bank at Macopin intake dam of Newark waterworks, 0.4 mi downstream from Macopin River, and 3.0 mi northwest of Butler.

DRAINAGE AREA.--63.7 mi².

PERIOD OF RECORD.--January 1898 to current year. Monthly discharge only for some periods, published in WSP 1302. Records for January 1892 to December 1897, published in WSP 541, have been found to be unreliable and should not be used.

GAGE.--Water-stage recorder above hewn-rock dam. Datum of gage is 570.00 ft above National Geodetic Vertical Datum of 1929 (levels by New Jersey Geological Survey). Prior to May 22, 1970, at datum 13.55 ft higher.

REMARKS.--No estimated daily discharges. Records good above 10 ft³/s, and poor below. Records given herein represent flow over intake dam only. Flow regulated by Canistear, Oak Ridge, Clinton, Charlotteburg Reservoirs, and Echo Lake (see Passaic River basin, reservoirs in). Water diverted at Charlotteburg Reservoir for municipal supply of city of Newark (see Passaic River basin, diversions). Several measurements of water temperature were made during the year. Satellite telemeter at station.

COOPERATION.--Gage-height record collected in cooperation with the Department of Public Affairs, Division of Water Supply, city of Newark. Prior to May 22, 1970, discharge figures provided by city of Newark.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	3.6	6.8	4.7	4.7	4.7	14	4.8	23	12	7.6	5.6
2	2.1	3.6	6.1	5.1	5.5	4.8	6.7	36	21	10	9.6	1.8
3	3.2	.97	5.5	5.7	5.9	4.7	6.1	12	20	9.9	11	2.1
4	5.1	.99	5.3	4.9	4.8	4.7	6.1	6.6	19	9.9	8.5	2.2
5	.55	14	4.0	4.6	4.7	4.8	6.4	12	17	22	7.8	6.0
6	.53	18	3.4	4.7	4.8	6.8	12	135	48	16	7.9	7.9
7	.54	4.5	3.8	4.7	6.2	5.5	10	46	108	10	9.5	7.2
8	.66	6.0	4.2	5.9	4.2	6.3	7.1	25	241	7.2	9.5	7.8
9	.55	3.0	3.4	7.4	2.9	5.1	6.9	18	191	6.1	9.0	7.9
10	.54	1.5	3.2	6.1	3.4	4.9	6.1	53	240	5.7	8.8	8.2
11	.51	1.3	3.6	5.2	3.3	5.0	4.7	456	191	10	9.6	6.1
12	.50	1.7	3.4	4.7	2.9	5.0	4.7	432	111	19	14	5.2
13	.50	5.9	2.8	7.2	2.4	5.3	4.7	317	114	17	18	6.1
14	.50	6.9	2.5	4.8	3.0	6.1	4.7	261	105	14	17	7.8
15	.50	4.6	2.9	7.5	3.8	6.9	6.7	229	105	4.7	14	7.8
16	.51	4.7	3.2	7.4	4.9	6.6	19	430	178	4.7	12	5.3
17	.52	6.7	3.4	5.9	3.6	6.0	10	1360	152	8.3	11	6.1
18	.53	4.3	3.4	6.1	3.7	6.5	8.3	1130	89	6.3	10	5.6
19	.54	3.4	3.4	5.5	3.4	5.4	7.4	658	41	18	12	18
20	.82	41	3.4	5.6	3.4	5.4	6.7	422	21	34	13	76
21	1.9	37	3.7	4.1	20	6.4	6.2	318	18	29	9.6	59
22	5.8	13	4.7	4.6	18	5.5	4.5	255	17	27	8.8	77
23	.90	11	4.7	4.7	8.3	4.7	3.3	204	17	26	8.2	22
24	.56	8.4	6.1	4.7	5.7	18	3.1	313	65	25	9.3	16
25	1.0	6.3	8.7	4.7	5.4	36	3.3	302	295	23	7.7	11
26	.75	6.1	5.4	4.8	6.1	20	3.4	209	136	23	7.1	23
27	.60	6.1	4.7	5.8	5.1	19	3.3	160	57	23	7.9	136
28	.55	15	6.2	4.7	4.7	15	3.5	130	23	22	7.6	239
29	.64	8.9	7.0	4.7	---	14	3.4	122	16	22	7.8	81
30	.56	7.9	5.1	4.9	---	15	4.1	62	12	23	7.4	9.9
31	.55	---	4.7	4.7	---	25	---	24	---	14	7.4	---
MEAN	1.12	8.55	4.47	5.36	5.53	9.33	6.55	263	89.7	16.2	9.95	29.2
MAX	5.8	41	8.7	7.5	20	36	19	1360	295	34	18	239
MIN	.50	.97	2.5	4.1	2.4	4.7	3.1	4.8	12	4.7	7.1	1.8

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	15.6	31.2	39.0	37.3	47.6	94.5	127	66.3	32.9	19.1	15.2	19.8
MEAN	15.6	31.2	39.0	37.3	47.6	94.5	127	66.3	32.9	19.1	15.2	19.8
MAX	288	309	236	208	270	572	506	263	360	238	228	211
(WY)	1956	1928	1973	1953	1939	1936	1983	1989	1972	1938	1955	1960
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(WY)	1929	1929	1929	1931	1930	1965	1950	1954	1944	1923	1923	1929

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	37.7	45.3
HIGHEST ANNUAL MEAN		109a
LOWEST ANNUAL MEAN		.12a
HIGHEST DAILY MEAN	1360	3170a
LOWEST DAILY MEAN	.50	.00
INSTANTANEOUS PEAK FLOW	1710	6100
INSTANTANEOUS PEAK STAGE	15.25	17.4
INSTANTANEOUS LOW FLOW	.49	.00
10 PERCENTILE	83	145a
50 PERCENTILE	6.2	4.1a
95 PERCENTILE	.50	.00a

a Since 1923

PASSAIC RIVER BASIN

01383500 WANAQUE RIVER AT AWOSTING, NJ

LOCATION.--Lat 41°09'31", long 74°20'00", Passaic County, Hydrologic Unit 02030103, on right bank 700 ft downstream from dam at outlet of Greenwood Lake at Awosting.

DRAINAGE AREA.--27.1 mi².

PERIOD OF RECORD.--May 1919 to current year. Prior to October 1940, published as "at Greenwood Lake".

REVISED RECORDS.--WSP 781: Drainage area. WSP 1552: 1922(M), 1928(M), 1936. WDR NJ-79-1: 1933(M), 1936(M), 1945(M), 1948(P), 1951(P), 1952(P), 1953(M), 1955(P), 1956(M), 1957(M), 1958(M), 1960(P), 1961(M), 1968(P), 1969(P). WDR NJ-80-1: 1960(P).

GAGE.--Water-stage recorder. Concrete control since Oct. 31, 1938. Datum of gage is 601.32 ft above National Geodetic Vertical Datum of 1929 (levels from New Jersey Geological Survey bench mark). Prior to Apr. 1, 1926, nonrecording gage and Apr. 1, 1926, to Oct. 31, 1938, water-stage recorder at site 100 ft upstream at same datum.

REMARKS.--Records fair except for estimated daily discharges, which are poor. Flow completely regulated by Greenwood Lake (see Passaic River basin, reservoirs in). Water diverted into basin above gage from Upper Greenwood Lake (Hudson River basin) by North Jersey District Water Supply Commission since 1968. Several measurements of water temperature were made during the year.

COOPERATION.--Gage-height record collected in cooperation with North Jersey District Water Supply Commission.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.5	24	90	32	29	e49	119	28	53	23	7.1	e7.3
2	3.5	44	80	34	29	e44	107	70	53	19	7.1	e6.9
3	3.5	40	71	35	31	e40	101	102	46	16	7.0	e6.6
4	3.5	35	68	35	31	e38	98	92	40	13	6.9	e6.4
5	3.5	50	58	29	29	e37	95	86	34	36	6.9	e6.1
6	3.6	110	54	29	27	e41	109	361	33	64	6.8	e5.8
7	3.5	108	51	32	e22	e38	114	475	46	59	6.6	e6.1
8	3.5	90	49	33	e20	e34	111	351	76	49	6.4	e5.9
9	3.5	80	44	35	e19	e33	104	250	76	37	e8.9	e6.0
10	3.5	66	41	32	e17	e31	95	228	105	31	e8.2	e5.9
11	3.5	62	40	31	e16	e30	83	346	97	31	e11	e5.6
12	3.5	55	16	32	e16	e29	72	331	75	23	e30	e5.2
13	3.5	62	17	37	e16	e30	66	262	73	18	e37	4.9
14	3.5	76	16	35	e17	e27	65	209	69	16	e32	5.0
15	3.3	74	16	39	e20	e27	64	171	81	13	e31	5.2
16	3.3	70	22	40	e23	e29	93	232	112	10	e32	5.2
17	3.3	82	22	38	e22	e28	91	709	114	11	e32	5.6
18	3.4	82	22	36	e20	e29	88	707	101	8.2	e26	5.8
19	3.6	75	22	35	e20	e32	83	483	85	7.2	e21	13
20	2.9	142	15	35	e20	e33	72	332	70	10	e20	151
21	3.0	327	14	33	e41	e36	64	238	64	14	e18	304
22	7.2	261	14	28	e73	e41	60	175	59	16	e15	252
23	7.8	207	14	26	e71	e37	51	138	54	18	e14	205
24	7.9	165	18	25	e68	e45	44	166	62	14	e13	156
25	7.8	134	25	23	e63	e73	38	151	57	12	e12	114
26	7.4	113	24	23	e67	e80	36	125	52	8.7	e10	126
27	7.2	99	21	27	e62	e72	34	111	54	7.3	e8.9	128
28	7.4	121	23	25	e54	e72	30	92	46	6.6	e8.3	103
29	8.5	112	29	26	---	e71	27	71	39	7.8	e8.9	85
30	12	100	28	28	---	76	29	61	28	7.0	e8.2	73
31	13	---	30	28	---	101	---	56	---	7.0	e7.8	---
MEAN	5.10	102	34.0	31.5	33.7	44.6	74.8	233	65.1	19.8	15.1	60.5
MAX	13	327	90	40	73	101	119	709	114	64	37	304
MIN	2.9	24	14	23	16	27	27	28	28	6.6	6.4	4.9

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	24.7	55.2	64.8	65.4	66.2	105	99.7	63.1	37.4	25.5	24.7	26.8
MAX		210	210	197	221	168	271	333	232	178	132	208	161
(WY)		1956	1984	1974	1979	1981	1980	1984	1989	1972	1938	1955	1979
MIN		.20	.18	1.88	6.98	16.3	43.5	24.7	13.4	4.37	2.76	.01	.06
(WY)		1932	1932	1985	1981	1980	1938	1985	1941	1957	1981	1929	1929

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	60.0	54.8
HIGHEST ANNUAL MEAN		105
LOWEST ANNUAL MEAN		19.9
HIGHEST DAILY MEAN	709	2350
LOWEST DAILY MEAN	2.9	.00
INSTANTANEOUS PEAK FLOW	825	2800
INSTANTANEOUS PEAK STAGE	4.32	6.65
INSTANTANEOUS LOW FLOW	1.4	.00
10 PERCENTILE	121	129
50 PERCENTILE	34	33
95 PERCENTILE	3.4	3.1

e Estimated

01384500 RINGWOOD CREEK NEAR WANAQUE, NJ

LOCATION.--Lat 41°07'36", long 74°15'52", Passaic County, Hydrologic Unit 02030103, on right bank 500 ft upstream from Wanaque Reservoir, 0.7 mi downstream from Ringwood Mill Pond dam, and 6.5 mi north of Wanaque.

DRAINAGE AREA.--19.1 mi².

PERIOD OF RECORD.--October 1934 to September 1978, October 1985 to current year. Monthly discharge only for some periods, published in WSP 1302.

REVISED RECORDS.--WDR NJ-82-1: 1935-77(P).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 292.67 ft above National Geodetic Vertical Datum of 1929 (levels by New Jersey Geological Survey). Prior to Sept. 30, 1978, at datum 10.0 ft higher.

REMARKS.--Records good except for estimated daily discharges, which are fair. Records given herein include flow over spillway and through ports in dam when open or through waste gate in dam. No flow through ports or waste gates this year. Flow slightly regulated by Ringwood Mill Pond, Sterling, and Sterling Forest Lakes, and several smaller lakes above station. Several measurements of water temperature were made during the year.

COOPERATION.--Gage-height record collected in cooperation with North Jersey District Water Supply Commission.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	7.2	51	15	18	29	91	22	29	22	6.7	e2.5
2	2.0	17	45	15	18	26	70	87	27	19	6.2	e2.0
3	3.0	9.8	41	15	18	25	67	68	24	17	6.6	e1.5
4	3.1	7.5	35	13	17	24	65	52	21	16	e5.3	e2.0
5	2.2	31	32	14	16	24	67	59	19	70	e4.8	e2.4
6	1.8	69	30	12	15	30	99	316	20	79	e4.3	e2.3
7	1.6	32	28	13	15	23	88	247	37	50	e4.6	e2.0
8	2.9	21	25	16	14	31	77	185	59	35	e4.4	e1.8
9	3.6	17	23	18	12	21	71	148	42	27	e3.8	e1.7
10	3.3	15	22	16	11	21	64	172	61	25	e3.3	e1.6
11	2.7	18	20	15	11	20	56	223	42	26	e5.6	e1.5
12	2.3	16	16	17	11	20	50	178	33	20	e25	e1.3
13	2.0	23	14	23	11	19	46	145	37	18	e31	1.9
14	1.9	31	15	19	14	18	45	120	37	16	e22	2.2
15	1.9	23	16	26	16	20	47	100	57	15	e18	2.9
16	1.7	20	14	27	18	20	77	185	86	14	e17	4.2
17	1.7	31	13	23	15	19	60	356	66	15	e16	6.1
18	1.6	30	13	22	13	20	52	258	53	14	e13	5.3
19	1.4	25	12	23	13	22	48	196	43	12	e11	15
20	1.3	124	12	23	12	19	44	155	36	13	e10	119
21	1.7	212	12	19	64	26	39	125	64	17	e8.2	93
22	9.8	143	12	20	81	26	35	98	48	22	e6.2	48
23	7.5	107	13	17	61	22	31	82	40	17	e5.6	37
24	4.6	87	18	18	47	36	29	109	70	13	e5.2	31
25	3.8	71	23	17	44	72	27	84	46	12	e4.3	25
26	3.4	61	17	18	36	53	26	65	39	10	e3.8	51
27	2.9	54	15	21	34	47	24	59	50	9.6	e3.3	47
28	2.6	92	17	19	31	45	23	50	35	8.2	e3.0	35
29	2.3	69	21	18	---	43	21	40	30	7.5	e4.1	30
30	2.3	57	17	18	---	47	22	34	25	7.0	e3.5	26
31	2.1	---	16	18	---	84	---	32	---	6.6	e3.0	---
MEAN	2.80	50.7	21.2	18.3	24.5	30.7	52.0	131	42.5	21.1	8.67	20.1
MAX	9.8	212	51	27	81	84	99	356	86	79	31	119
MIN	1.3	7.2	12	12	11	18	21	22	19	6.6	3.0	1.3
IN.	.17	2.96	1.28	1.11	1.34	1.85	3.04	7.89	2.49	1.27	.52	1.17

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

MEAN	15.3	32.6	42.5	40.4	41.6	66.6	59.4	40.4	22.8	15.1	13.5	12.6
MAX	131	88.8	103	149	109	157	123	131	121	86.1	107	59.0
(WY)	1956	1973	1974	1979	1970	1936	1940	1989	1972	1945	1955	1960
MIN	1.07	2.27	4.06	12.5	14.0	28.5	18.3	10.9	3.78	1.31	.70	.28
(WY)	1945	1950	1940	1940	1940	1938	1966	1941	1957	1966	1966	1964

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	35.3	33.5
HIGHEST ANNUAL MEAN		54.4
LOWEST ANNUAL MEAN		13.2
HIGHEST DAILY MEAN	356	756
LOWEST DAILY MEAN	1.3	.00
INSTANTANEOUS PEAK FLOW	393	1150
INSTANTANEOUS PEAK STAGE	12.49	13.74
INSTANTANEOUS LOW FLOW	1.3	.00
ANNUAL RUNOFF (INCHES)	25.09	23.79
10 PERCENTILE	78	79
50 PERCENTILE	21	21
95 PERCENTILE	1.8	1.1

e Estimated

PASSAIC RIVER BASIN

01387000 WANAQUE RIVER AT WANAQUE, NJ

LOCATION.--Lat 41°02'39", long 74°17'36", revised, Passaic County, Hydrologic Unit 02030103, on left bank 750 ft downstream from Raymond Dam in Wanaque, and 50 ft upstream from bridge on State Highway 511.

DRAINAGE AREA.--90.4 mi², considered as 94 mi² Oct. 1, 1928 to Sept. 30, 1934.

WATER DISCHARGE RECORDS

PERIOD OF RECORD.--December 1903 to December 1905 (gage heights only), September 1912 to April 1915, May 1919 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 210.00 ft above National Geodetic Vertical Datum of 1929 (levels from New Jersey Geological Survey bench mark). Dec. 16, 1903, to Dec. 31, 1905, nonrecording gage on highway bridge at site 50 ft downstream at different datum. Sept. 15, 1912, to Apr. 1, 1922, nonrecording gage at site 200 ft downstream from present concrete control at different datum. Apr. 1, 1922 to Mar. 14, 1931, water-stage recorder at site 400 ft downstream from present concrete control at present datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by Greenwood Lake 11 mi above station, since October 1987 by Monksville Reservoir just upstream of Wanaque Reservoir, and since 1928 by Wanaque Reservoir (see Passaic River basin, reservoirs in). North Jersey District Water Supply Commission diverts water for municipal supply from Wanaque Reservoir. Water is diverted to Wanaque Reservoir from Posts Brook at Wanaque and from Ramapo River at Pompton Lakes (see Passaic River basin, diversions). Water diverted into basin above gage from Upper Greenwood Lake (Hudson River basin) by North Jersey District Water Supply Commission since 1968. Several measurements of water temperature, other than those published, were made during the year. National Weather Service rain-gage and USGS satellite gage-height telemeters at station.

COOPERATION.--Gage-height record collected in cooperation with North Jersey District Water Supply Commission.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	19	18	19	17	17	26	24	33	19	17	17
2	17	19	18	19	18	17	18	21	25	19	17	17
3	18	19	18	18	18	17	24	29	18	19	18	17
4	18	19	18	17	17	17	77	22	19	19	19	17
5	18	21	18	18	17	18	123	60	18	20	21	17
6	18	19	18	18	17	18	206	1330	17	19	21	17
7	18	19	18	17	17	17	232	1420	19	21	21	17
8	18	19	18	18	17	18	213	903	18	24	19	18
9	18	18	18	17	17	18	187	614	18	19	18	17
10	18	17	18	17	17	18	166	604	27	19	18	17
11	17	17	18	18	17	17	128	1020	79	21	18	17
12	17	17	18	18	17	17	96	868	24	19	20	17
13	18	18	18	17	17	17	75	661	36	19	19	17
14	17	18	18	17	18	17	63	502	45	18	18	17
15	17	18	18	18	18	19	69	393	104	18	18	17
16	17	18	18	17	17	18	174	618	177	19	39	18
17	17	18	18	17	17	17	164	1880	189	19	36	18
18	17	18	18	17	17	18	141	1560	153	19	17	17
19	17	18	18	17	17	17	119	1020	114	19	18	20
20	18	23	18	17	17	17	89	705	69	19	18	22
21	19	20	18	17	19	17	53	517	95	18	18	19
22	19	19	18	17	18	17	105	366	105	18	18	18
23	18	19	18	17	18	17	52	264	70	18	18	18
24	18	19	19	17	17	18	34	351	80	18	17	18
25	18	19	18	17	18	17	22	316	72	18	18	18
26	18	19	18	18	17	17	19	231	59	17	19	19
27	18	19	18	17	17	17	20	198	105	18	19	18
28	18	19	19	17	17	17	19	169	63	17	18	18
29	18	18	19	17	---	17	18	114	67	17	18	18
30	18	18	19	17	---	18	20	80	21	17	18	18
31	18	---	19	17	---	18	---	50	---	17	17	---
MEAN	17.7	18.7	18.2	17.4	17.3	17.4	91.7	545	64.6	18.7	19.6	17.8
MAX	19	23	19	19	19	19	232	1880	189	24	39	22
MIN	17	17	18	17	17	17	18	21	17	17	17	17

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD (a), BY WATER YEAR (WY)

	26.5	26.4	37.5	47.7	54.6	130	170	91.5	56.8	32.1	20.4	24.3
MAX	258	272	233	360	412	599	806	545	416	221	87.5	263
(WY)	1956	1956	1946	1978	1973	1929	1984	1989	1972	1945	1929	1933
MIN	1.82	1.70	1.50	.76	2.05	1.91	1.54	1.72	2.17	1.73	1.53	1.51
(WY)	1966	1966	1950	1950	1966	1966	1966	1966	1966	1965	1965	1965

PASSAIC RIVER BASIN

91

01387000 WANAQUE RIVER AT WANAQUE, NJ--Continued

WATER DISCHARGE RECORDS--Continued

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	72.8		59.9a	
HIGHEST ANNUAL MEAN			170a	1984
LOWEST ANNUAL MEAN			1.93a	1966
HIGHEST DAILY MEAN	1880	May 17	5470a	Apr 6 1984
LOWEST DAILY MEAN	17	Oct 1	.06a	Oct 11 1984
INSTANTANEOUS PEAK FLOW	2160	May 17	10500	Apr 5 1984
INSTANTANEOUS PEAK STAGE	6.69	May 17	10.82	Apr 5 1984
INSTANTANEOUS LOW FLOW	9.7	Oct 12	---	
10 PERCENTILE	119		131a	
50 PERCENTILE	19		19a	
95 PERCENTILE	17		3.4a	

a Since 1929

PASSAIC RIVER BASIN

01387000 WANAQUE RIVER AT WANAQUE, NJ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1963 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1963 to September 1980.

COOPERATION.--Analyses of fecal coliform and fecal streptococci by the MPN method, and selected water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988 19...	1200	17	178	7.2	9.5	3.7	32	2.0	9	2
FEB 1989 15...	1145	17	269	7.6	2.5	14.4	105	1.1	>2	>2
APR 13...	1100	74	238	7.5	7.5	12.4	104	1.6	13	<2
MAY 18...	1130	1550	172	7.7	14.5	10.3	101	2.4	--	--
JUL 27...	1100	E18	160	7.6	21.5	9.3	106	1.2	5	720
AUG 21...	1130	17	155	7.6	19.0	9.4	102	0.9	--	--

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988 19...	45	12	3.6	12	1.2	40	16	19	<0.1
FEB 1989 15...	75	20	6.1	23	2.0	46	22	42	0.1
APR 13...	59	16	4.7	19	1.3	36	16	34	0.1
MAY 18...	45	12	3.7	14	1.1	26	14	22	0.1
JUL 27...	44	12	3.5	13	1.0	26	13	20	0.1
AUG 21...	41	11	3.3	13	1.0	26	12	20	0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988 19...	6.3	94	0.008	<0.05	0.42	0.83	--	0.06	4.4
FEB 1989 15...	5.6	148	0.010	1.16	0.35	0.75	1.9	0.15	4.0
APR 13...	1.5	114	E0.011	0.68	0.08	0.54	1.2	0.06	3.5
MAY 18...	0.23	83	--	--	--	--	--	--	3.7
JUL 27...	1.8	80	0.017	0.28	<0.05	0.38	0.66	0.03	3.3
AUG 21...	1.8	78	<0.003	0.24	<0.05	0.28	0.52	0.04	3.1

PASSAIC RIVER BASIN

93

01387000 WANAQUE RIVER AT WANAQUE, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	NITRO- GEN, NH4 + ORG. TOT IN BOT MAT (MG/KG AS N)	CARBON, INOR- GANIC, TOT IN BOT MAT (G/KG AS C)	CARBON, INORG + ORGANIC TOT. IN BOT MAT (GM/KG AS C)	ARSENIC TOTAL IN BOT- TOM MA- TERIAL (UG/G AS AS)	CADMIUM RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CD)	CHRO- MIUM, RECOV. FM BOT- TOM MA- TERIAL (UG/G)	COBALT, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CO)	COPPER, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CU)	IRON, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS FE)	
OCT 1988 19...	1200	360	1.7	5.2	2	<10	30	10	40	1300	
DATE		LEAD, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS PB)	MANGA- NESE, RECOV. FM BOT- TOM MA- TERIAL (UG/G)	MERCURY RECOV. FM BOT- TOM MA- TERIAL (UG/G AS HG)	SELE- NIUM, TOTAL IN BOT- TOM MA- TERIAL (UG/G)	ZINC, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS ZN)	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PCN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
OCT 1988 19...	80	560	0.34	<1	110	120	<1.0	0.4	12	1.3	
DATE		DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- AZINON, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDO- SULFAN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ETHION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
OCT 1988 19...		<1.0	<1.0	0.1	0.6	<0.1	<0.1	<0.1	<0.1	0.2	<0.1
DATE		MALA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA- THION, TOT. IN BOTTOM MATL. (UG/KG)	METHYL TRI- THION, TOT. IN BOTTOM MATL. (UG/KG)	MIREX, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PARA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PER- THANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TRI- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	
OCT 1988 19...		0.4	<0.1	<0.1	<0.1	<0.1	<0.1	<1.00	<10	<0.1	

PASSAIC RIVER BASIN

01387420 RAMAPO RIVER AT SUFFERN, NY

LOCATION.--Lat 41°07'06", long 74°09'38", Rockland County, Hydrologic Unit 02030103, on left bank, 145 ft downstream from highway bridge on New York State Thruway at Suffern, and 1.1 mi upstream from Mahwah River.

DRAINAGE AREA.--93.0 mi².

PERIOD OF RECORD.--June 1979 to current year.

GAGE.--Water-stage recorder, crest-stage gage, and concrete control. Datum of gage is 264.44 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Flow affected by diversion from Spring Valley Water Company well field upstream from station and by occasional regulation by Lake Sebago.

COOPERATION.--Figures of pumpage from well field provided by Spring Valley Water Company.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	42	252	57	68	120	500	86	129	90	29	16
2	11	128	224	55	67	107	356	296	143	76	26	14
3	14	95	203	54	69	100	328	374	116	64	29	13
4	15	70	183	47	69	92	307	244	92	57	26	14
5	12	144	157	e45	63	92	323	250	80	230	23	14
6	11	598	141	e43	59	118	476	2330	77	417	18	14
7	11	343	130	e46	57	100	449	1930	139	245	17	14
8	15	214	120	e56	53	90	358	924	318	164	19	13
9	18	160	108	e74	e48	80	318	594	341	111	15	13
10	18	127	100	65	e45	72	274	654	474	90	13	13
11	14	109	90	59	e43	69	233	1570	351	103	17	13
12	12	93	78	64	e42	71	208	1140	225	77	165	12
13	12	129	70	95	e41	70	199	714	209	63	294	13
14	14	227	66	82	47	67	193	509	217	55	185	15
15	13	185	64	102	57	69	225	392	305	48	109	28
16	13	147	e60	111	73	77	315	816	468	43	83	30
17	13	204	e54	95	62	75	279	3720	398	45	68	32
18	13	228	e50	85	56	83	237	2190	287	42	51	29
19	12	188	e47	86	52	91	213	1070	221	37	42	56
20	12	704	46	86	50	83	187	702	176	41	45	559
21	13	1840	48	78	209	121	167	518	211	59	39	715
22	60	948	48	69	510	117	149	398	200	75	33	e350
23	63	530	48	64	371	98	130	316	195	66	29	231
24	47	379	61	61	252	194	117	468	521	49	27	167
25	41	299	97	61	196	375	110	494	381	52	23	122
26	36	256	80	61	165	289	103	340	272	42	19	225
27	32	231	65	80	151	234	95	278	250	37	16	288
28	29	387	65	76	132	211	89	243	189	33	16	215
29	27	382	86	69	---	200	84	196	146	29	17	154
30	26	293	73	69	---	251	86	169	111	26	19	122
31	23	---	63	71	---	446	---	151	---	24	19	---
MEAN	21.3	323	96.0	69.9	111	137	237	777	241	83.5	49.4	117
MAX	63	1840	252	111	510	446	500	3720	521	417	294	715
MIN	11	42	46	43	41	67	84	86	77	24	13	12
(†)	6.4	11	12	14	14	14	14	14	14	13	10	6.3

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	76.3	171	197	133	228	306	410	261	119	59.5	40.4	70.1
MEAN	76.3	171	197	133	228	306	410	261	119	59.5	40.4	70.1
MAX	218	323	693	290	475	816	862	777	269	234	133	219
(WY)	1988	1989	1984	1982	1981	1983	1984	1989	1982	1984	1986	1987
MIN	11.0	17.1	29.6	6.84	49.7	128	77.1	98.5	23.4	19.6	10.1	12.3
(WY)	1985	1985	1981	1981	1980	1981	1985	1987	1987	1983	1981	1981

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	189	171
(†)	12	
HIGHEST ANNUAL MEAN		295
LOWEST ANNUAL MEAN		78.2
HIGHEST DAILY MEAN	3720	7110
LOWEST DAILY MEAN	11	3.7
INSTANTANEOUS PEAK FLOW	4500	12300a
INSTANTANEOUS PEAK STAGE	10.60	15.38
INSTANTANEOUS LOW FLOW	10	2.6
	May 17	Apr 5 1984
	Oct 1	Sep 30 1981
	May 17	Apr 5 1984
	May 17	Apr 5 1984
	Oct 6	Sep 30 1981

a From rating curve extended above 5,400 ft³/s

e Estimated

† Diversion, in cubic feet per second, by pumpage from well field upstream of gage

PASSAIC RIVER BASIN

95

01387450 MAHWAH RIVER NEAR SUFFERN, NY

LOCATION.--Lat 41°08'27", Long 74°07'01", Rockland County, Hydrologic Unit 02030103, on left bank, 13 ft upstream from bridge on U.S. Highway 202, 2.5 mi northeast of Suffern, and 4.8 mi upstream from mouth.

DRAINAGE AREA.--12.3 mi².

PERIOD OF RECORD.--August 1958 to current year.

REVISED RECORDS.--WDR NY-79-1: 1977(P). WDR NY-87-1: 1986.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 321.57 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 18, 1976, water-stage recorder at site on right bank 13 ft downstream, at present datum.

REMARKS.--No estimated daily discharges. Records fair. Occasional regulation from unknown source. Telephone gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	10	27	8.6	11	16	49	12	23	11	6.1	2.9
2	1.6	21	24	8.8	11	15	37	61	21	9.5	4.3	2.8
3	4.2	13	22	8.8	11	14	35	42	18	8.6	5.0	2.6
4	2.3	10	20	8.2	10	14	33	29	16	8.0	4.1	2.3
5	1.6	29	19	6.9	9.4	14	34	36	14	35	3.9	2.3
6	1.4	58	17	6.5	9.1	17	48	323	15	26	3.5	2.2
7	1.2	33	16	6.5	8.9	14	44	153	22	17	3.7	2.1
8	3.0	24	15	8.0	8.5	11	37	81	31	13	4.9	2.0
9	2.8	18	14	11	7.8	11	34	56	41	9.6	3.3	1.8
10	1.9	15	13	9.2	6.9	11	31	97	69	8.4	2.8	1.8
11	1.7	13	12	8.4	6.6	11	27	249	40	11	4.4	1.7
12	1.6	11	10	10	6.7	11	24	129	28	7.6	39	1.5
13	1.5	23	9.2	19	6.4	10	22	82	30	7.1	25	1.5
14	1.3	27	9.1	13	8.2	9.8	22	62	27	6.7	14	1.8
15	1.3	22	9.1	20	10	10	24	51	42	5.7	9.9	6.9
16	1.3	18	8.7	19	13	11	50	211	65	5.3	9.8	3.0
17	1.5	34	8.0	15	10	10	36	618	46	6.9	10	5.7
18	1.5	29	7.5	13	8.4	11	29	240	35	5.8	6.8	3.0
19	1.5	24	7.1	14	7.8	12	26	116	27	5.1	6.9	12
20	1.5	137	7.0	14	7.5	10	23	79	22	8.9	8.6	55
21	1.8	216	7.5	12	53	14	22	64	27	12	6.3	64
22	18	93	7.8	9.8	60	15	19	52	23	21	5.5	31
23	6.5	57	7.8	9.7	42	12	18	44	22	11	5.1	23
24	5.1	42	11	9.8	30	22	17	96	45	7.4	4.7	17
25	4.3	34	18	9.8	24	58	15	69	29	6.1	4.1	12
26	3.5	29	12	10	21	37	15	50	23	8.5	3.7	31
27	2.9	27	9.8	14	20	29	14	45	20	8.4	3.5	24
28	2.7	57	11	12	18	26	13	37	17	5.4	3.5	17
29	2.7	39	15	11	---	24	13	31	14	5.7	3.5	13
30	2.5	31	11	11	---	27	13	27	12	4.5	3.5	11
31	2.5	---	9.2	11	---	51	---	25	---	4.4	3.2	---
MEAN	2.86	39.8	12.7	11.2	15.9	18.0	27.5	105	28.8	10.0	7.18	11.9
MAX	18	216	27	20	60	58	50	618	69	35	39	64
MIN	1.2	10	7.0	6.5	6.4	9.8	13	12	12	4.4	2.8	1.5
IN.	.27	3.61	1.19	1.05	1.35	1.69	2.49	9.88	2.61	.94	.67	1.08

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	13.2	26.4	29.6	27.0	33.6	45.1	42.9	31.7	17.8	10.4	8.44	10.3
MAX	37.4	100	88.8	103	76.2	113	115	105	105	82.7	45.4	31.8	57.3
(WY)	1976	1978	1984	1979	1970	1983	1983	1989	1972	1984	1960	1971	
MIN	1.94	2.31	5.72	2.02	7.68	15.0	8.14	12.5	4.22	1.31	1.16	.68	
(WY)	1981	1965	1981	1981	1980	1985	1985	1965	1965	1977	1981	1980	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	24.3	24.7
HIGHEST ANNUAL MEAN		41.4
LOWEST ANNUAL MEAN		11.2
HIGHEST DAILY MEAN	618	1040
LOWEST DAILY MEAN	1.2	.12
INSTANTANEOUS PEAK FLOW	818	1840a
INSTANTANEOUS PEAK STAGE	5.91	9.91
INSTANTANEOUS LOW FLOW	1.20	.05b
ANNUAL RUNOFF (INCHES)	26.82	27.23

a From rating curve extended above 850 ft³/s on basis of contracted-opening measurement at gage height 9.91 ft

b Result of temporary pumping from gage pool

PASSAIC RIVER BASIN

01387500 RAMAPO RIVER NEAR MAHWAH, NJ

LOCATION.--Lat 41°05'51", long 74°09'48", Bergen County, Hydrologic Unit 02030103, on left bank 350 ft downstream from State Highway 17, 0.6 mi downstream from Mahwah River, and 1.0 mi west of Mahwah. Water-quality samples collected at bridge, 350 ft upstream from gage, at high flows.

DRAINAGE AREA.--120 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1902 to December 1906, September 1922 to current year. October 1902 to February 1905 monthly discharge only, published in WSP 1302. Figures of daily discharge Feb. 10, 1903, to Dec. 31, 1904, published in WSP 97, 125, are unreliable and should not be used. Gage-height records for 1903-14 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 781: 1904(M). WSP 1031: 1938, 1940. WSP 1552: 1923(M), 1924, 1925-26(M), 1927-28, 1933, 1937. WRD-NJ 1971: 1968(M). WDR NJ-82-1: Drainage area. WDR-NJ-87-1: 1986.

GAGE.--Water-stage recorder. Datum of gage is 253.10 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 31, 1906, nonrecording gage on former bridge at site 250 ft downstream at different datum. Sept. 1, 1922 to Dec. 23, 1936, water-stage recorder just below former bridge at present datum.

REMARKS.--No estimated daily discharges. Records fair. Flow affected by diversion from Spring Valley (NY) Water Company well field upstream from station (see station 01387420). Occasional regulation from lakes and ponds upstream from the station. Several measurements of water temperature, other than those published, were made during the year. Satellite telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	84	305	84	97	161	640	122	208	142	59	24
2	30	179	265	80	95	144	488	457	215	122	50	23
3	36	127	235	80	99	134	419	495	187	106	58	21
4	26	91	211	71	98	128	399	318	156	94	48	22
5	22	186	189	74	88	129	390	335	143	361	42	22
6	20	578	174	59	84	163	551	2770	138	535	36	22
7	20	369	163	65	81	136	591	2360	225	306	40	22
8	31	247	152	90	75	112	485	1090	436	206	39	21
9	29	186	140	111	67	107	415	717	471	158	32	21
10	26	147	129	94	60	102	367	847	637	157	29	20
11	23	123	119	84	58	98	311	2010	470	161	54	20
12	21	103	98	103	57	99	272	1410	316	119	308	18
13	20	166	92	141	61	96	249	876	324	101	376	19
14	21	270	92	117	71	92	246	645	307	93	226	31
15	21	214	91	152	86	96	261	528	437	83	148	54
16	21	173	86	157	105	104	429	1140	632	77	140	58
17	21	264	80	132	87	100	385	4450	520	87	111	56
18	27	275	73	118	74	108	321	2770	387	76	81	38
19	20	221	71	120	69	125	283	1370	301	71	68	140
20	19	827	69	119	71	115	245	905	245	93	70	745
21	26	2220	72	107	307	143	218	686	288	117	58	900
22	119	1120	72	92	657	160	198	553	286	129	46	450
23	81	622	75	89	478	134	178	468	287	118	42	300
24	56	455	107	87	324	196	162	711	661	88	41	224
25	47	362	149	91	247	488	150	689	477	85	34	164
26	41	308	117	89	211	406	143	486	372	78	31	303
27	36	279	96	110	196	318	131	426	354	77	28	361
28	34	512	100	105	177	276	123	373	249	62	27	245
29	33	459	126	98	---	257	115	300	207	54	34	191
30	31	353	107	98	---	281	120	261	170	48	30	156
31	30	---	93	100	---	496	---	235	---	53	27	---
MEAN	32.5	384	127	101	149	178	309	994	337	131	77.8	156
MAX	119	2220	305	157	657	496	640	4450	661	535	376	900
MIN	19	84	69	59	57	92	115	122	138	48	27	18
IN.	.31	3.57	1.22	.97	1.30	1.71	2.88	9.55	3.13	1.26	.75	1.45

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	141	223	272	260	283	445	408	262	154	101	102	113
MEAN	141	223	272	260	283	445	408	262	154	101	102	113
MAX	954	736	873	877	701	1151	1055	994	735	602	755	478
(WY)	1904	1978	1984	1979	1970	1936	1984	1989	1972	1945	1955	1927
MIN	13.8	24.4	43.4	16.5	70.8	144	88.4	79.5	37.0	21.9	13.5	11.1
(WY)	1942	1965	1981	1981	1980	1985	1985	1905	1957	1957	1981	1964

01387500 RAMAPO RIVER NEAR MAHWAH, NJ--Continued

WATER-DISCHARGE RECORDS--Continued

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	248		230	
HIGHEST ANNUAL MEAN			461	1903
LOWEST ANNUAL MEAN			99.5	1985
HIGHEST DAILY MEAN	4450	May 17	8920	Oct 9 1903
LOWEST DAILY MEAN	18	Sep 12	6.1b	Sep 30 1981
INSTANTANEOUS PEAK FLOW	5230	May 17	15500a	Apr 5 1984
INSTANTANEOUS PEAK STAGE	9.36	May 17	13.35	Apr 5 1984
INSTANTANEOUS LOW FLOW	17	Sep 12	4.6b	Sep 30 1981
ANNUAL RUNOFF (INCHES)	28.10		26.01	
10 PERCENTILE	510		517	
50 PERCENTILE	125		138	
95 PERCENTILE	23		22	

a From rating curve extended above 1,400 ft³/s

b Possible regulation

PASSAIC RIVER BASIN

01387500 RAMAPO RIVER NEAR MAHWAH, NJ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1963 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: February 1964 to June 1965.

COOPERATION.--Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, EC BROTH (MPN)	STREP- TOCOCCI FECAL (MPN)
OCT 1988										
17...	1030	22	578	7.7	13.0	8.1	77	3.0	2200	490
FEB 1989										
07...	1100	82	359	8.0	2.0	14.0	102	6.6	49	5
APR										
12...	1230	270	250	8.2	8.5	13.8	118	2.4	170	40
JUN										
12...	1130	324	235	7.9	17.0	9.5	99	1.8	490	170
JUL										
26...	1200	76	345	7.9	23.0	9.3	110	5.7	2400	>2400
AUG										
30...	1100	30	460	7.7	20.5	7.7	87	1.2	500	500

DATE	HARD- NESS TOTAL (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)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT 1988									
17...	140	37	11	55	3.3	93	28	94	0.1
FEB 1989									
07...	88	24	6.9	33	1.4	60	20	57	0.1
APR									
12...	63	17	4.9	22	1.0	40	15	38	0.1
JUN									
12...	66	18	5.1	19	1.1	47	14	33	0.1
JUL									
26...	99	27	7.6	29	1.7	71	18	49	0.1
AUG									
30...	130	36	10	44	2.2	94	22	67	0.1

DATE	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHOROUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988									
17...	8.0	292	0.213	3.40	0.12	0.84	4.2	0.57	3.9
FEB 1989									
07...	6.8	185	0.020	1.19	0.79	1.0	2.2	0.15	2.4
APR									
12...	4.7	127	0.009	0.44	0.16	0.47	0.91	0.09	2.7
JUN									
12...	7.1	126	0.031	0.79	0.15	0.58	1.4	0.11	4.4
JUL									
26...	7.8	183	0.047	1.54	0.13	0.63	2.2	0.18	4.3
AUG									
30...	9.4	247	0.038	1.75	0.12	0.50	2.3	0.24	3.2

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

PASSAIC RIVER BASIN

01388000 RAMAPO RIVER AT POMPTON LAKES, NJ

LOCATION.--Lat 40°59'33", long 74°16'44", Passaic County, Hydrologic Unit 02030103, on right end of dam at pumping station in Pompton Lakes, 700 ft upstream of bridge on Paterson-Hamburg Turnpike, and 2.0 mi upstream from mouth. Water samples collected upstream of dam at water supply intake, on right bank. Water-quality monitor is 300 ft downstream of dam.

DRAINAGE AREA.--160 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1921 to current year.

REVISED RECORDS.--WSP 1552: 1922(M), 1924-25, 1929-31(M), 1934-35(M). WRD-NJ 1970: 1968-69. WRD-NJ 1988: 1984(M).

GAGE.--Water-stage recorder and concrete dam. Datum of gage is 190.96 ft above National Geodetic Vertical Datum of 1929. Prior to October 1, 1981, at datum 10.00 ft higher.

REMARKS.--Records good. Diversion by North Jersey District Water Supply Commission to Wanaque Reservoir since December 1953 (see Passaic River basin, diversions) and to Oradell Reservoir by Hackensack Water Company since February 1985 (see Hackensack River basin, diversions) for municipal supply. Slight regulation by Pompton Lake, capacity, 300,000,000 gal. Several measurements of water temperature were made during the year. Satellite telemeter at station.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	87	408	115	141	222	795	172	298	224	78	44
2	37	219	346	111	136	197	660	533	281	193	76	42
3	55	184	310	108	140	182	551	709	270	169	98	39
4	48	136	279	106	144	169	527	477	230	148	77	38
5	39	195	249	71	129	175	532	396	202	323	68	36
6	36	690	230	91	123	212	676	2240	201	728	59	38
7	33	529	214	87	118	188	761	2910	252	454	55	38
8	46	348	206	109	111	140	641	1530	481	313	56	38
9	48	262	196	153	104	144	547	993	539	241	53	36
10	46	214	188	137	90	136	488	970	782	202	49	34
11	41	186	171	124	90	131	418	2130	633	236	57	32
12	34	161	140	135	88	138	368	1870	429	184	298	31
13	33	185	126	215	85	122	338	1210	471	152	569	30
14	32	325	127	189	105	117	335	919	424	134	365	31
15	33	281	126	223	122	118	347	749	554	119	264	60
16	31	233	115	245	158	125	607	1140	862	110	185	63
17	32	330	110	209	138	122	553	4420	739	124	212	96
18	31	372	99	186	116	131	462	3770	552	112	140	64
19	36	302	97	182	107	164	400	1870	430	101	121	114
20	32	822	86	182	101	149	357	1210	354	111	108	940
21	35	2300	87	167	310	183	320	908	401	159	98	1320
22	154	1490	90	141	827	204	292	712	412	143	81	731
23	131	847	94	140	665	182	264	606	414	165	70	458
24	95	604	127	133	467	226	246	866	734	127	69	347
25	79	475	210	129	350	619	257	901	676	107	59	253
26	65	403	165	135	303	569	235	665	497	109	53	325
27	60	360	132	152	275	446	208	559	613	93	49	479
28	54	642	128	155	250	386	186	508	402	90	48	346
29	50	610	167	144	---	350	173	410	323	75	48	270
30	48	474	150	142	---	361	174	358	264	70	52	223
31	47	---	129	144	---	620	---	337	---	70	48	---
MEAN	50.8	476	171	147	207	233	424	1195	457	180	118	220
MAX	154	2300	408	245	827	620	795	4420	862	728	569	1320
MIN	31	87	86	71	85	117	173	172	201	70	48	30

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	145	266	318	314	355	553	522	353	208	138	136	148
MEAN	145	266	318	314	355	553	522	353	208	138	136	148
MAX	1154	954	1135	1035	838	1670	1465	1195	973	895	889	725
(WY)	1956	1933	1984	1979	1970	1936	1983	1989	1972	1945	1955	1927
MIN	13.6	22.2	12.8	27.5	83.0	67.8	24.8	72.0	39.9	5.89	6.17	10.8
(WY)	1981	1981	1981	1981	1969	1985	1985	1965	1965	1985	1985	1964

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	323	287	Unadjusted
HIGHEST ANNUAL MEAN		512	1984
LOWEST ANNUAL MEAN		73.1	1985
HIGHEST DAILY MEAN	4420	10400	Mar 12 1936
LOWEST DAILY MEAN	30	.00	Oct 1 1922
INSTANTANEOUS PEAK FLOW	5510	15400	Apr 5 1984
INSTANTANEOUS PEAK STAGE	12.77	15.21a	Apr 5 1984
INSTANTANEOUS LOW FLOW	27	.00	Many days
10 PERCENTILE	686	679	
50 PERCENTILE	180	164	
95 PERCENTILE	36	28	

a From gage well, outside high-water marks at 15.33 ft

01388000 RAMAPO RIVER AT POMPTON LAKES, NJ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1923, 1962-67, 1982, 1987 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: April to September 1989.

WATER TEMPERATURE: April to September 1989.

DISSOLVED OXYGEN: April to September 1989.

INSTRUMENTATION.--Water-quality monitor since April 1989. Data recorded at hourly intervals.

REMARKS.--Discrete water-quality samples were collected upstream of dam at water supply intake, on right bank. Water-quality monitor is 300 ft downstream of dam. Interruptions in the daily record were due to malfunctions of the instrument.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 29.5°C, July 26; minimum, 7.0°C, Apr. 2.

DISSOLVED OXYGEN: Maximum, 11.9 mg/L, Apr. 2; minimum, 6.0 mg/L, Aug. 7.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN DEMAND, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	HARD- NESS TOTAL (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)
OCT 1988												
20...	1430	31	401	8.8	13.0	9.6	91	4.2	130	35	10	37
NOV												
17...	1130	308	251	7.6	9.0	10.8	94	3.6	71	19	5.6	19
DEC												
14...	1415	126	299	7.6	2.0	12.8	93	3.0	85	23	6.6	21
JAN 1989												
18...	1330	182	369	--	2.5	12.2	89	2.8	85	23	6.7	39
FEB												
16...	1300	165	345	8.1	2.5	12.6	91	3.9	100	27	7.9	29
MAR												
22...	1130	209	350	8.4	8.0	12.7	107	5.3	90	25	6.8	31
APR												
14...	1300	329	245	8.0	9.0	12.7	110	6.0	66	18	5.0	20
MAY												
25...	1330	916	250	7.7	16.0	7.7	79	3.9	69	19	5.3	19
JUN												
13...	1300	531	210	7.8	20.0	8.9	101	3.0	64	18	4.7	17
27...	1330	571	205	7.6	25.0	11.4	140	1.5	61	17	4.4	16
JUL												
20...	1430	118	306	8.0	24.0	9.2	111	1.9	91	25	6.9	23
AUG												
15...	1000	276	280	7.7	21.5	7.1	81	1.2	81	22	6.3	22
SEP												
15...	1130	66	358	9.1	23.5	13.2	157	6.6	100	28	8.5	30
29...	1200	266	245	7.8	15.0	8.6	86	2.1	62	17	4.7	18

DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)
OCT 1988											
20...	1.8	86	24	61	0.1	3.8	228	0.030	0.030	0.800	0.820
NOV											
17...	0.6	44	18	33	0.1	7.3	132	0.010	0.010	0.700	0.720
DEC											
14...	1.2	55	19	39	0.1	8.8	156	0.050	0.040	1.00	0.860
JAN 1989											
18...	1.7	53	18	71	0.1	6.5	203	0.030	0.020	1.00	1.10
FEB											
16...	1.6	63	20	56	0.1	5.4	191	0.020	0.040	1.40	1.40
MAR											
22...	1.5	55	20	59	0.1	3.8	184	0.030	0.040	1.00	0.960
APR											
14...	0.9	40	14	36	0.1	4.9	126	0.010	0.010	0.500	0.570
MAY											
25...	1.1	45	15	31	0.1	7.6	128	0.020	0.020	0.600	0.660
JUN											
13...	1.1	44	13	29	0.1	6.7	119	0.030	0.030	0.600	0.660
27...	1.1	41	13	25	0.1	7.4	112	0.030	0.020	0.600	0.620
JUL											
20...	1.4	64	15	41	0.1	7.2	161	0.020	0.020	0.600	0.560
AUG											
15...	1.6	57	15	36	0.1	6.3	148	0.020	0.020	0.900	0.850
SEP											
15...	1.6	71	20	53	0.1	5.0	189	<0.010	<0.010	<0.100	<0.100
29...	1.3	43	14	27	0.1	8.2	119	0.020	0.020	0.800	0.740

PASSAIC RIVER BASIN

01388000 RAMAPO RIVER AT POMPTON LAKES, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHOROUS TOTAL (MG/L AS P)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, TOTAL (MG/L AS P)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDED TOTAL (MG/L AS C)
OCT 1988											
20...	0.030	0.020	0.50	0.30	1.3	0.030	0.020	0.030	0.020	2.3	1.0
NOV											
17...	0.090	0.090	0.60	0.50	1.3	0.120	0.070	0.070	0.060	2.6	0.6
DEC											
14...	0.100	0.070	0.50	0.50	1.5	0.070	0.050	0.060	0.040	2.0	0.5
JAN 1989											
18...	0.180	0.200	0.70	0.70	1.7	0.090	0.060	0.070	0.050	2.7	0.5
FEB											
16...	0.080	0.040	0.40	0.40	1.8	0.110	0.070	0.080	0.050	2.3	0.4
MAR											
22...	0.040	0.030	0.80	0.20	1.8	0.100	0.020	0.030	0.010	--	--
APR											
14...	0.040	0.030	0.50	<0.20	1.0	0.040	0.040	0.020	0.020	2.3	0.3
MAY											
25...	0.100	0.110	0.50	0.40	1.1	0.070	0.030	0.030	0.030	2.5	0.1
JUN											
13...	0.020	0.030	0.60	0.70	1.2	0.050	0.030	0.040	0.030	3.7	0.5
27...	0.060	0.050	0.40	0.40	1.0	0.060	0.050	0.030	0.040	4.0	0.4
JUL											
20...	0.060	0.060	0.70	0.40	1.3	0.060	0.020	0.020	<0.010	3.8	0.9
AUG											
15...	0.130	0.120	1.0	0.60	1.9	0.130	0.040	0.070	0.050	3.3	1.0
SEP											
15...	0.020	<0.010	1.5	0.40	--	0.070	<0.010	0.020	<0.010	3.6	4.0
29...	0.050	0.060	0.50	0.40	1.3	0.120	0.030	0.070	0.020	3.8	0.8

01388000 RAMAPO RIVER AT POMPTON LAKES, NJ--Continued

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	271	244	255	337	302	318
2	---	---	---	---	---	---	241	217	228	333	283	298
3	---	---	---	---	---	---	222	214	218	282	244	267
4	---	---	---	---	---	---	220	214	216	---	---	---
5	---	---	---	---	---	---	223	209	216	---	---	---
6	---	---	---	---	---	---	234	221	226	---	---	---
7	---	---	---	---	---	---	229	218	223	---	---	---
8	---	---	---	---	---	---	232	218	225	---	---	---
9	---	---	---	---	---	---	237	220	227	---	---	---
10	---	---	---	---	---	---	238	226	231	---	---	---
11	---	---	---	---	---	---	241	227	232	---	---	---
12	---	---	---	---	---	---	241	232	237	---	---	---
13	---	---	---	---	---	---	242	234	238	---	---	---
14	---	---	---	---	---	---	262	239	245	---	---	---
15	---	---	---	---	---	---	253	237	245	---	---	---
16	---	---	---	---	---	---	262	245	252	---	---	---
17	---	---	---	---	---	---	261	234	247	---	---	---
18	---	---	---	---	---	---	260	222	243	---	---	---
19	---	---	---	---	---	---	261	250	253	---	---	---
20	---	---	---	---	---	---	254	247	251	---	---	---
21	---	---	---	---	---	---	257	241	247	---	---	---
22	---	---	---	---	---	---	273	250	260	---	---	---
23	---	---	---	---	---	---	283	249	262	---	---	---
24	---	---	---	---	---	---	282	235	256	---	---	---
25	---	---	---	---	---	---	292	247	264	---	---	---
26	---	---	---	---	---	---	287	264	275	---	---	---
27	---	---	---	---	---	---	302	285	292	---	---	---
28	---	---	---	---	---	---	310	288	300	---	---	---
29	---	---	---	---	---	---	327	302	309	---	---	---
30	---	---	---	---	---	---	336	310	321	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	336	209	250	---	---	---

01388000 RAMAPO RIVER AT POMPTON LAKES, NJ--Continued

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	---	---	---	364	339	353	354	344	349
2	---	---	---	---	---	---	360	342	354	369	346	357
3	---	---	---	290	255	270	374	350	362	368	355	362
4	---	---	---	310	271	288	369	355	362	361	355	358
5	---	---	---	322	255	274	374	360	367	365	353	359
6	---	---	---	282	251	271	383	354	369	372	355	361
7	---	---	---	259	239	248	367	355	361	367	361	363
8	---	---	---	239	227	232	375	356	363	372	362	366
9	---	---	---	263	231	244	376	358	367	395	367	378
10	---	---	---	275	239	251	396	365	380	403	382	391
11	---	---	---	263	243	254	381	366	373	414	390	400
12	---	---	---	275	251	263	379	354	367	416	400	406
13	---	---	---	306	259	272	369	325	351	412	395	400
14	---	---	---	298	255	274	329	278	306	399	389	396
15	---	---	---	286	255	272	291	263	279	419	394	406
16	239	220	229	325	267	281	300	276	286	421	413	417
17	239	216	226	275	263	269	309	275	288	436	416	426
18	255	224	233	282	267	274	299	273	287	447	430	441
19	239	220	230	306	278	292	283	268	273	450	407	428
20	278	231	243	318	306	310	294	268	280	428	279	384
21	271	235	258	315	298	306	305	273	279	283	211	241
22	286	231	264	335	315	327	293	276	284	210	203	207
23	282	259	267	362	325	339	303	275	292	222	208	213
24	275	227	258	361	335	348	302	287	294	221	209	215
25	259	204	225	355	335	347	307	292	299	216	208	212
26	247	196	211	371	340	355	308	297	302	225	214	218
27	224	204	212	361	348	353	---	---	---	226	222	224
28	247	212	230	368	349	361	307	302	305	228	219	224
29	---	---	---	375	357	366	329	304	316	233	223	226
30	259	220	234	356	347	351	346	311	333	236	227	231
31	---	---	---	361	341	347	356	337	345	---	---	---
MONTH	---	---	---	375	227	298	396	263	326	450	203	332

TEMPERATURE, WATER (DEG. C) WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

01388000 RAMAPO RIVER AT POMPTON LAKES, NJ--Continued

TEMPERATURE, WATER (DEG. C) WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	9.0	7.5	8.0	15.0	14.5	15.0
2	---	---	---	---	---	---	7.5	7.0	7.5	14.5	13.5	14.0
3	---	---	---	---	---	---	8.0	7.5	7.5	13.5	13.0	13.0
4	---	---	---	---	---	---	8.0	7.5	8.0	14.0	12.5	13.0
5	---	---	---	---	---	---	9.5	8.0	9.0	14.0	13.5	13.5
6	---	---	---	---	---	---	9.5	9.5	9.5	14.0	13.0	13.5
7	---	---	---	---	---	---	9.5	9.0	9.0	14.0	13.5	14.0
8	---	---	---	---	---	---	9.5	8.5	9.0	13.5	12.0	12.5
9	---	---	---	---	---	---	9.5	9.0	9.5	12.0	11.5	12.0
10	---	---	---	---	---	---	9.5	9.0	9.0	12.0	11.0	11.5
11	---	---	---	---	---	---	9.0	8.0	8.5	11.0	10.0	10.5
12	---	---	---	---	---	---	9.0	8.5	8.5	11.0	10.0	10.5
13	---	---	---	---	---	---	9.0	8.5	9.0	12.0	11.0	11.5
14	---	---	---	---	---	---	9.5	8.5	8.5	13.0	12.0	12.5
15	---	---	---	---	---	---	9.5	9.0	9.0	14.0	12.5	13.0
16	---	---	---	---	---	---	9.0	8.5	8.5	14.0	13.5	14.0
17	---	---	---	---	---	---	10.0	8.0	9.0	14.5	13.0	14.0
18	---	---	---	---	---	---	12.0	10.0	11.0	16.0	14.0	15.0
19	---	---	---	---	---	---	12.5	11.5	12.0	17.0	15.5	16.5
20	---	---	---	---	---	---	13.5	12.0	12.5	18.0	16.5	17.0
21	---	---	---	---	---	---	13.5	12.5	13.0	19.0	17.5	18.0
22	---	---	---	---	---	---	13.0	11.5	12.5	19.5	17.5	18.5
23	---	---	---	---	---	---	12.0	11.0	11.5	18.5	17.5	18.0
24	---	---	---	---	---	---	12.0	10.5	11.5	17.5	16.0	16.5
25	---	---	---	---	---	---	12.0	11.5	11.5	17.5	15.5	16.5
26	---	---	---	---	---	---	13.5	11.5	12.5	18.5	17.5	18.0
27	---	---	---	---	---	---	14.5	12.5	13.5	18.5	18.0	18.5
28	---	---	---	---	---	---	15.5	13.0	14.0	18.0	17.0	17.5
29	---	---	---	---	---	---	14.5	13.5	14.0	18.5	17.5	18.0
30	---	---	---	---	---	---	16.0	13.5	14.5	18.5	18.0	18.5
31	---	---	---	---	---	---	---	---	---	20.0	18.0	18.5
MONTH	---	---	---	---	---	---	16.0	7.0	10.5	20.0	10.0	15.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	---	---	---	---	---	---	25.5	23.5	24.5	24.0	23.0	23.5
2	---	---	---	---	---	---	24.0	23.5	24.0	24.5	23.0	23.5
3	23.5	21.5	22.5	27.0	24.5	25.5	27.0	24.0	25.0	24.0	23.0	23.5
4	24.5	21.5	23.0	26.0	24.5	25.0	26.5	25.5	25.5	23.5	22.5	23.0
5	24.0	22.5	23.0	24.5	23.5	24.5	28.5	25.5	27.0	23.0	21.5	22.5
6	22.5	22.0	22.5	23.5	22.0	22.5	28.0	27.5	27.5	23.0	21.0	22.0
7	22.0	20.0	21.0	25.0	22.0	23.0	28.0	27.0	27.5	22.5	21.0	21.5
8	20.0	19.0	19.5	25.5	23.5	24.5	27.0	25.5	26.0	22.5	21.0	21.5
9	19.5	18.5	19.5	25.0	24.0	24.5	26.0	24.5	25.5	23.5	21.5	22.5
10	20.5	18.5	19.0	26.0	24.0	25.0	25.5	24.0	25.0	25.0	23.0	24.0
11	20.0	19.0	19.5	28.0	25.5	26.5	24.5	23.0	23.5	26.5	24.5	25.5
12	20.5	19.5	20.0	26.5	25.5	26.0	23.0	22.0	22.5	26.0	25.0	25.5
13	20.5	19.5	20.0	25.0	24.0	24.5	22.0	21.0	21.5	26.0	24.0	25.0
14	20.0	19.0	19.5	26.0	23.5	24.5	22.0	21.5	21.5	24.5	24.0	24.0
15	18.5	17.0	18.0	26.0	23.5	25.0	22.5	21.5	22.0	24.0	23.5	23.5
16	18.0	17.0	17.0	24.5	23.0	24.0	26.5	22.5	24.0	23.5	22.0	23.0
17	20.0	17.5	18.5	24.0	22.5	23.0	26.5	23.5	24.5	22.5	22.0	22.0
18	21.0	19.0	20.0	24.0	22.5	23.0	24.5	23.5	24.0	22.0	21.0	21.5
19	22.0	20.5	21.0	23.5	22.5	23.0	23.5	22.5	23.0	21.0	20.0	20.5
20	22.5	21.5	22.0	24.0	23.5	24.0	23.0	22.5	22.5	20.0	19.5	20.0
21	23.0	22.5	22.5	23.5	22.5	23.0	23.5	23.0	23.0	20.5	19.5	20.0
22	22.5	22.0	22.5	22.5	22.0	22.5	26.0	23.5	24.5	21.0	20.0	20.5
23	22.5	22.0	22.5	25.5	22.5	24.0	27.0	24.5	25.5	21.0	20.0	21.0
24	22.5	22.0	22.5	27.0	24.5	25.5	26.5	25.0	25.5	19.5	18.5	19.0
25	22.5	21.5	22.0	27.0	25.0	26.0	26.0	24.0	25.0	18.5	17.5	18.0
26	25.0	22.5	23.5	29.5	25.5	27.5	25.0	23.5	24.5	18.5	18.0	18.0
27	24.5	23.5	23.5	28.0	26.5	27.0	25.0	23.5	24.0	17.5	16.0	16.5
28	25.0	24.0	24.5	28.5	26.0	27.0	24.0	23.0	23.5	15.5	15.0	15.5
29	---	---	---	27.5	26.0	27.0	23.5	23.0	23.5	16.0	15.0	15.5
30	25.5	23.0	24.0	26.5	25.5	25.5	25.0	23.0	24.0	16.5	15.5	16.0
31	---	---	---	25.5	24.0	24.5	25.0	23.5	24.0	---	---	---
MONTH	25.5	17.0	21.0	29.5	22.0	24.5	28.5	21.0	24.5	26.5	15.0	21.5

PASSAIC RIVER BASIN

01388000 RAMAPO RIVER AT POMPTON LAKES, NJ--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	11.7	10.9	11.3	10.2	10.0	10.1
2	---	---	---	---	---	---	11.9	11.6	11.7	10.4	10.1	10.2
3	---	---	---	---	---	---	11.6	11.5	11.6	10.6	10.4	10.5
4	---	---	---	---	---	---	11.5	11.3	11.4	10.8	10.1	10.5
5	---	---	---	---	---	---	11.3	11.0	11.1	10.2	10.0	10.1
6	---	---	---	---	---	---	11.0	10.9	11.0	10.3	10.0	10.1
7	---	---	---	---	---	---	11.1	11.0	11.0	10.3	10.0	10.2
8	---	---	---	---	---	---	11.2	11.0	11.1	10.9	10.3	10.5
9	---	---	---	---	---	---	11.2	11.0	11.1	10.9	10.7	10.8
10	---	---	---	---	---	---	11.4	11.2	11.3	11.0	10.7	10.8
11	---	---	---	---	---	---	11.5	11.3	11.4	11.3	11.0	11.2
12	---	---	---	---	---	---	11.6	11.4	11.4	11.3	11.1	11.2
13	---	---	---	---	---	---	11.5	11.4	11.4	11.2	10.9	11.0
14	---	---	---	---	---	---	11.6	11.3	11.5	11.0	10.7	10.9
15	---	---	---	---	---	---	11.4	11.2	11.3	10.8	10.5	10.7
16	---	---	---	---	---	---	11.5	11.4	11.4	10.7	10.5	10.5
17	---	---	---	---	---	---	11.6	11.1	11.4	10.9	10.6	10.7
18	---	---	---	---	---	---	11.2	10.6	10.9	10.7	10.2	10.5
19	---	---	---	---	---	---	10.8	10.5	10.7	10.3	10.0	10.1
20	---	---	---	---	---	---	10.7	10.5	10.6	10.0	9.7	9.9
21	---	---	---	---	---	---	10.6	10.4	10.5	9.8	9.5	9.7
22	---	---	---	---	---	---	10.8	10.4	10.7	9.8	9.5	9.6
23	---	---	---	---	---	---	11.0	10.8	10.9	9.7	9.6	9.7
24	---	---	---	---	---	---	11.1	10.7	10.9	10.0	9.7	9.8
25	---	---	---	---	---	---	11.0	10.7	10.8	10.1	9.7	10.0
26	---	---	---	---	---	---	10.9	10.5	10.7	9.8	9.5	9.7
27	---	---	---	---	---	---	10.8	10.1	10.5	9.7	9.5	9.6
28	---	---	---	---	---	---	10.6	9.9	10.3	9.9	9.7	9.8
29	---	---	---	---	---	---	10.5	10.1	10.3	10.0	9.6	9.8
30	---	---	---	---	---	---	10.6	10.1	10.3	9.8	9.5	9.7
31	---	---	---	---	---	---	---	---	---	9.8	9.5	9.7
MONTH	---	---	---	---	---	---	11.9	9.9	11.0	11.3	9.5	10.2

PASSAIC RIVER BASIN

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01388000 RAMAPO RIVER AT POMPTON LAKES, NJ--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	---	---	---	7.5	7.1	7.3	7.4	6.8	7.0
2	---	---	---	---	---	---	7.6	7.2	7.3	7.6	6.9	7.2
3	9.2	8.7	9.0	7.8	7.5	7.6	7.6	7.0	7.4	8.0	7.0	7.4
4	9.0	8.5	8.7	7.7	7.3	7.5	7.6	6.9	7.2	8.2	7.2	7.7
5	8.8	8.5	8.6	7.9	7.4	7.6	7.4	6.2	6.9	8.4	7.4	7.8
6	8.6	8.5	8.6	8.1	8.0	8.0	7.4	6.1	6.6	8.5	7.7	8.0
7	9.0	8.6	8.8	8.0	7.5	7.8	7.2	6.0	6.4	8.7	7.7	8.1
8	9.1	9.0	9.1	7.8	7.5	7.7	7.4	6.3	6.8	8.7	7.7	8.2
9	9.2	9.1	9.1	7.8	7.5	7.7	7.6	6.6	7.0	8.5	7.6	8.1
10	9.4	9.1	9.3	7.6	7.1	7.4	7.6	6.6	7.1	8.3	7.2	7.8
11	9.5	9.2	9.3	7.5	7.1	7.3	7.6	6.7	7.1	8.2	7.0	7.5
12	9.4	9.0	9.2	7.4	7.0	7.2	8.1	7.2	7.8	8.0	6.9	7.4
13	9.1	8.9	9.0	7.3	7.0	7.1	8.5	8.1	8.4	8.2	6.9	7.5
14	9.2	9.1	9.2	7.5	7.1	7.2	8.4	8.2	8.3	8.1	7.4	7.7
15	9.5	9.3	9.3	7.5	6.9	7.2	8.3	8.0	8.1	---	---	---
16	9.5	9.3	9.4	7.4	6.9	7.1	8.1	7.6	7.8	---	---	---
17	9.3	8.9	9.2	7.5	7.2	7.4	8.1	7.6	7.9	---	---	---
18	9.0	8.7	8.9	7.6	7.2	7.4	8.1	7.7	7.9	---	---	---
19	8.9	8.5	8.7	7.6	7.1	7.5	7.9	7.7	7.8	---	---	---
20	8.6	8.4	8.5	7.5	7.0	7.3	8.0	7.7	7.8	---	---	---
21	8.4	8.3	8.4	7.6	7.4	7.6	8.0	7.5	7.7	---	---	---
22	8.4	8.2	8.3	7.9	7.7	7.8	7.8	7.1	7.5	---	---	---
23	8.3	8.2	8.2	7.8	7.3	7.6	7.6	7.0	7.2	---	---	---
24	8.2	8.2	8.2	7.5	7.1	7.3	7.8	7.0	7.3	---	---	---
25	8.3	8.1	8.2	7.5	6.9	7.2	7.8	6.9	7.3	---	---	---
26	8.1	7.8	8.0	7.4	6.7	7.0	7.7	6.8	7.2	---	---	---
27	7.9	7.7	7.8	7.1	6.7	6.9	7.6	6.9	7.3	---	---	---
28	7.8	7.7	7.8	7.1	6.6	6.8	7.6	7.0	7.3	---	---	---
29	---	---	---	7.2	6.6	6.9	7.4	6.8	7.1	---	---	---
30	8.0	7.8	7.9	7.4	6.9	7.1	7.3	6.8	7.0	---	---	---
31	---	---	---	7.3	7.0	7.1	7.4	6.8	7.1	---	---	---
MONTH	9.5	7.7	8.7	8.1	6.6	7.3	8.5	6.0	7.4	---	---	---

PASSAIC RIVER BASIN

01388500 POMPTON RIVER AT POMPTON PLAINS, NJ

LOCATION.--Lat 40°58'09", Long 74°16'56", Passaic County, Hydrologic Unit 02030103, on left bank in Passaic Valley Water Commission pumping station, 800 ft below confluence of Pequannock and Ramapo Rivers, 100 ft upstream from bridge on Jackson Avenue (Pompton Plains Cross Road), and 0.7 mi east of Pompton Plains.

DRAINAGE AREA.--355 mi².

PERIOD OF RECORD.--March 1903 to December 1904, May 1940 to current year. Monthly discharge only for some periods, published in WSP 1302.

REVISED RECORDS.--WSP 1202: 1945(M).

GAGE.--Water-stage recorder, crest-stage gage, and concrete control. Datum of gage is 160.00 ft above National Geodetic Vertical Datum of 1929. March 1903 to December 1904, nonrecording gage on main spillway of dam 2,000 ft upstream at different datum. May 1940 to September 1964 two water-stage recorders, each above a concrete dam about 2,000 ft upstream at datum 14.46 ft higher.

REMARKS.--No estimated daily discharges. Records fair. Water diverted from reservoirs on Pequannock and Wanaque Rivers, from Pompton River to Point View Reservoir, and from Ramapo River to Wanaque Reservoir and Oradell Reservoir (from February 1985) for municipal supply (see Hackensack River basin, diversions into and from and Passaic River basin, diversions). Flow regulated by Canistear, Oak Ridge, Clinton, Charlotteburg and Echo Lake Reservoirs on Pequannock River and by Greenwood Lake, Monksville and Wanaque Reservoirs on Wanaque River (see Passaic River basin, reservoirs in). Several measurements of water temperature were made during the year. Satellite telemeter at station.

COOPERATION.--Gage-height record collected in cooperation with Passaic Valley Water Commission.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	71	160	574	177	192	321	1310	256	441	311	128	95
2	76	307	486	170	186	293	1050	990	398	273	126	88
3	100	245	429	167	190	274	869	1170	368	252	188	82
4	92	176	389	159	193	259	890	760	310	225	133	78
5	79	304	336	123	176	261	987	679	279	547	122	77
6	73	979	320	146	168	332	1320	4720	305	1050	110	84
7	70	692	307	145	163	306	1420	6530	513	632	107	85
8	96	441	292	175	154	235	1270	3520	1010	436	111	84
9	86	326	276	232	143	240	1100	2170	1020	323	100	82
10	81	276	265	200	129	223	961	2130	1440	275	93	81
11	76	240	242	178	131	214	774	4780	1230	323	113	79
12	66	204	197	201	128	222	646	4560	753	269	464	71
13	66	253	184	302	124	212	565	2910	904	224	839	70
14	62	420	188	261	147	200	545	2130	790	204	543	85
15	63	342	186	319	170	206	571	1760	1110	175	363	138
16	63	285	171	341	216	218	1210	2650	1620	162	269	118
17	62	450	167	291	183	207	1070	9830	1470	183	307	160
18	62	493	153	262	158	229	870	10100	1130	169	192	118
19	67	376	150	256	148	279	738	5700	794	159	179	294
20	62	1300	148	252	142	242	619	3370	584	242	172	1770
21	69	3300	149	228	531	302	505	2290	689	265	157	2020
22	257	2050	150	193	1250	323	513	1770	718	221	140	1270
23	178	1210	157	191	985	285	415	1470	712	241	128	773
24	138	886	211	182	677	402	361	1980	1110	190	130	564
25	118	699	311	179	494	1130	355	1930	1310	171	113	406
26	102	583	249	184	427	911	322	1490	931	171	103	564
27	94	510	201	206	390	688	294	1280	1070	157	98	793
28	87	988	204	205	352	581	270	1140	652	154	97	775
29	84	885	259	196	---	520	248	858	521	139	102	528
30	80	678	223	192	---	558	252	674	372	132	106	323
31	77	---	193	195	---	1040	---	527	---	135	99	---
MEAN	88.9	669	251	210	298	378	744	2778	818	271	191	392
MAX	257	3300	574	341	1250	1130	1420	10100	1620	1050	839	2020
MIN	62	160	148	123	124	200	248	256	279	132	93	70

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

MEAN	286	409	517	488	566	924	958	623	380	242	220	233
MAX	2369	1417	1543	1562	1654	2477	2995	2778	2177	1530	1520	1057
(WY)	1904	1956	1984	1979	1973	1983	1983	1989	1972	1945	1955	1971
MIN	40.2	52.3	34.8	39.2	149	118	62.7	110	62.9	34.2	34.2	46.7
(WY)	1981	1981	1981	1981	1969	1981	1985	1965	1965	1965	1966	1980

01388500 POMPTON RIVER AT POMPTON PLAINS, NJ--Continued

SUMMARY STATISTICS	FOR 1989 WATER YEAR		FOR PERIOD OF RECORD	
AVERAGE FLOW	592		485	
HIGHEST ANNUAL MEAN			906	1952
LOWEST ANNUAL MEAN			117	1965
HIGHEST DAILY MEAN	10100	May 18	28300	Oct 10 1903
LOWEST DAILY MEAN	62	Oct 14	.00	Aug 18 1904
INSTANTANEOUS PEAK FLOW	12500	May 17	28340a	Oct 10 1903
INSTANTANEOUS PEAK STAGE	18.89	May 17	14.3b	Oct 10 1903
INSTANTANEOUS LOW FLOW	59	Oct 18	.00	Aug 18 1904
10 PERCENTILE	1220		1140	
50 PERCENTILE	265		245	
95 PERCENTILE	76		58	

a By computation of peak flow over dam, maximum observed
 b Site and datum then in use

PASSAIC RIVER BASIN

01388600 POMPTON RIVER AT PACKANACK LAKE, NJ

LOCATION.--Lat 40°56'36", Long 74°16'47", Morris County, Hydrologic Unit 02030103, at bridge on State Highway 504 in Packanack Lake, and 2.2 mi downstream from confluence of Pequannock and Wanaque Rivers.

DRAINAGE AREA.--361 mi².

PERIOD OF RECORD.--February 1979 to current year.

COOPERATION.--Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	
OCT 1988													
20...	1230	E63	345	7.8	12.0	10.1	93	6.6	--	--	100	28	
NOV													
17...	1440	E497	244	7.7	9.5	11.6	102	3.6	--	--	71	19	
DEC													
14...	1315	E187	299	7.6	2.0	13.5	98	3.0	--	--	82	22	
JAN 1989													
18...	1100	E266	325	7.4	2.5	14.9	109	3.9	200	<200	85	23	
FEB													
16...	1130	E233	338	8.0	3.5	13.8	103	3.3	--	--	93	25	
MAR													
21...	1200	E308	365	8.0	7.0	13.6	114	3.0	320	170	82	22	
APR													
14...	1100	E569	250	7.9	8.5	12.0	103	6.9	--	--	67	18	
MAY													
25...	1130	E2020	202	7.7	19.0	9.7	106	1.8	5400	170	56	15	
JUN													
13...	1130	E987	190	7.8	19.0	9.2	102	1.9	--	--	58	16	
27...	1300	E1110	190	7.9	23.0	9.3	110	1.8	--	--	58	16	
JUL													
19...	1100	E159	290	7.7	22.0	7.5	87	3.0	200	200	84	23	
AUG													
14...	1300	E488	287	7.8	22.0	8.9	102	0.9	130	130	84	23	
SEP													
15...	1000	E130	310	7.9	21.0	7.1	81	6.9	--	--	83	22	
28...	1145	E795	218	7.8	14.5	11.3	110	5.1	--	--	56	15	
DATE		MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)
OCT 1988													
20...	8.5	27	2.0	71	23	48	0.1	5.8	190	0.060	0.060	1.00	
NOV													
17...	5.8	19	1.4	43	21	32	0.1	7.5	135	0.030	0.030	0.700	
DEC													
14...	6.6	22	1.4	53	22	38	0.1	9.0	157	0.050	0.040	1.00	
JAN 1989													
18...	6.7	36	1.7	53	20	63	0.1	6.8	194	0.030	0.010	1.00	
FEB													
16...	7.4	29	1.6	57	22	54	0.1	5.7	185	0.020	0.040	1.20	
MAR													
21...	6.6	34	1.6	52	23	63	0.1	4.4	190	0.010	0.020	1.10	
APR													
14...	5.3	21	1.1	39	16	37	0.1	5.0	130	0.010	0.010	0.600	
MAY													
25...	4.4	16	1.0	34	14	25	0.1	5.8	104	0.020	0.010	0.400	
JUN													
13...	4.3	16	1.2	37	14	25	0.1	6.1	108	0.040	0.030	0.600	
27...	4.3	15	1.2	27	14	22	0.1	6.6	99	0.030	0.020	0.600	
JUL													
19...	6.4	22	1.5	58	17	37	0.1	7.8	154	0.060	0.060	0.900	
AUG													
14...	6.5	23	1.5	58	15	37	0.1	7.1	152	0.010	0.030	0.800	
SEP													
15...	6.7	23	1.8	51	18	37	0.1	6.1	149	0.030	0.030	0.800	
28...	4.5	15	1.1	37	14	22	0.1	8.0	105	0.030	0.020	0.600	

PASSAIC RIVER BASIN

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01388600 POMPTON RIVER AT PACKANACK LAKE, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	NITRO- GEN, NO ₂ +NO ₃ DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHOROUS TOTAL (MG/L AS P)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS, ORTHO, TOTAL (MG/L AS P)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDED TOTAL (MG/L AS C)
OCT 1988												
20...	0.960	0.370	0.380	0.90	0.70	1.9	0.140	0.090	0.130	0.100	2.7	0.5
NOV												
17...	0.760	0.180	0.190	0.80	0.70	1.5	0.160	0.090	0.090	0.080	2.6	0.5
DEC												
14...	0.900	0.270	0.230	0.80	0.50	1.8	0.090	0.060	0.070	0.050	2.5	0.5
JAN 1989												
18...	1.00	0.310	0.350	0.70	0.60	1.7	0.100	0.070	0.080	0.060	2.9	0.4
FEB												
16...	1.20	0.290	0.230	0.80	0.80	2.0	0.140	0.070	0.080	0.050	2.6	0.4
MAR												
21...	0.950	0.230	0.180	0.80	0.40	1.9	0.110	0.040	0.060	0.040	2.6	0.4
APR												
14...	0.690	0.120	0.100	1.0	1.0	1.6	0.050	0.040	0.030	0.020	2.5	0.4
MAY												
25...	0.460	0.100	0.080	0.60	0.20	1.0	0.050	0.020	0.020	<0.010	2.9	0.6
JUN												
13...	0.630	0.110	0.110	0.70	0.70	1.3	0.090	0.040	0.050	0.030	3.6	--
27...	0.690	0.100	0.100	0.40	0.40	1.0	0.060	0.050	0.030	0.040	3.6	0.6
JUL												
19...	0.880	0.240	0.240	0.90	0.70	1.8	0.110	--	0.070	0.060	3.0	0.7
AUG												
14...	0.810	0.150	0.140	1.4	0.80	2.2	0.100	0.070	0.050	0.040	4.0	0.8
SEP												
15...	0.710	0.100	0.100	1.2	1.0	2.0	0.140	0.060	0.090	0.050	3.4	0.1
28...	0.560	0.110	0.130	0.50	0.50	1.1	0.070	0.030	0.050	0.010	3.7	0.5

DATE	TIME	SULFIDE TOTAL (MG/L AS S)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE)	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)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1988									
20...	1230	<0.5	10	<1	<10	60	<1	1	6
MAY 1989									
25...	1130	<0.5	30	<1	<10	40	<1	1	3

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL RECOV- ERABLE (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	PHENOLS TOTAL (UG/L)
OCT 1988								
20...	300	<5	150	0.10	6	<1	10	1
MAY 1989								
25...	420	8	80	<0.10	1	<1	<10	2

01389005 PASSAIC RIVER BELOW POMPTON RIVER AT TWO BRIDGES, NJ

LOCATION.--Lat 40°53'47"N, Long 74°16'10"W, Passaic County, Hydrologic Unit 02030103, on right bank, in Two Bridges and 400 ft downstream from the Pompton River.

DRAINAGE AREA.--734 mi².

PERIOD OF RECORD.--June, 1987 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	HARD-NESS TOTAL (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)
OCT 1988												
20...	1130	E200	653	7.3	13.0	4.3	41	15	160	38	15	71
DEC 14...	0930	E560	413	7.4	0.5	11.3	79	4.2	110	27	10	34
JAN 1989												
27...	0930	E480	433	7.8	3.5	12.3	94	8.1	96	25	8.2	34
MAR 21...	1030	E920	595	7.5	6.5	9.9	81	3.3	110	27	9.5	70
JUN 16...	1430	E4300	219	7.3	17.5	6.7	70	2.9	63	17	5.1	17
26...	1230	E2600	225	7.2	23.5	7.0	83	1.9	64	17	5.3	17
JUL 20...	1400	E600	--	7.3	23.0	6.2	--	--	95	25	8.0	27
AUG 14...	0930	E1150	295	7.5	21.5	6.6	75	2.2	82	22	6.6	24
SEP 15...	1415	E510	560	7.7	23.5	4.8	57	7.2	130	34	12	52
28...	1430	E3100	200	7.2	15.0	6.6	65	5.1	--	--	--	--

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)
OCT 1988											
20...	5.7	93	46	94	0.1	14	367	0.200	0.200	5.20	4.90
DEC 14...	3.4	78	33	54	0.1	14	236	0.030	0.040	2.30	2.20
JAN 1989											
27...	2.6	64	30	60	0.2	8.4	209	0.030	0.030	--	--
MAR 21...	2.7	60	35	120	0.1	9.0	318	0.030	0.030	1.30	1.50
JUN 16...	1.7	41	14	25	0.1	8.7	118	0.050	0.060	1.00	0.840
26...	1.5	42	15	25	0.1	8.5	118	0.040	0.050	0.700	0.710
JUL 20...	2.4	62	23	41	0.1	11	183	0.100	0.080	1.90	1.70
AUG 14...	1.9	56	18	37	0.1	8.0	156	0.040	0.050	1.10	1.00
SEP 15...	5.5	83	43	75	0.1	13	304	0.190	0.180	4.20	3.60
28...	--	40	15	21	0.1	--	--	0.040	0.040	0.600	0.660

DATE	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOROUS TOTAL (MG/L AS P)	PHOS-PHOROUS DIS-SOLVED (MG/L AS P)	PHOS-PHOROUS, ORTHO, TOTAL (MG/L AS P)	PHOS-PHOROUS, ORTHO, DIS-SOLVED (MG/L AS P)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)
OCT 1988											
20...	2.40	2.40	2.8	2.7	8.0	1.30	1.10	1.10	1.00	7.2	0.5
DEC 14...	2.00	1.90	2.7	2.5	5.0	0.650	0.510	0.550	0.450	4.4	0.5
JAN 1989											
27...	1.10	1.10	1.9	1.9	--	0.330	0.260	0.280	0.210	3.2	0.7
MAR 21...	1.10	1.00	1.7	1.6	3.0	0.430	0.280	0.310	0.260	4.9	0.8
JUN 16...	0.210	0.200	0.70	0.70	1.7	0.190	0.120	0.150	0.120	5.2	0.7
26...	0.140	0.140	0.60	0.30	1.3	0.130	0.090	0.150	0.090	4.6	0.8
JUL 20...	0.360	0.310	2.0	1.1	3.9	0.300	0.180	0.210	0.160	5.0	0.9
AUG 14...	0.250	0.220	1.0	0.80	2.1	0.240	0.100	0.170	0.120	5.5	1.2
SEP 15...	1.30	1.20	2.2	1.7	6.4	0.950	0.800	0.810	0.740	4.6	1.5
28...	0.100	0.110	1.2	1.3	1.8	0.220	0.110	0.180	0.120	6.5	0.6

PASSAIC RIVER BASIN

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01389500 PASSAIC RIVER AT LITTLE FALLS, NJ
(National stream quality accounting network station)

LOCATION.--Lat 40°53'05", long 74°13'35", Passaic County, Hydrologic Unit 02030103, on left bank 0.6 mi downstream from Beattie's Dam in Little Falls, and 1.0 mi upstream from Peckman River.

DRAINAGE AREA.--762 mi². Area at site used prior to Oct. 1, 1955, 799 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1897 to current year. Monthly discharge only for September 1897, published in WSP 1302. Published as "at Paterson", September 1897 to September 1955.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 120.00 ft above National Geodetic Vertical Datum of 1929 (levels by Passaic Valley Water Commission). Prior to Jan. 8, 1933, nonrecording gage and Jan. 8, 1933, to Sept. 30, 1955, water-stage recorder, at site 3.7 mi downstream at National Geodetic Vertical Datum of 1929 (levels from New Jersey Geological Survey bench mark).

REMARKS.--No estimated daily discharges. Records good. Diurnal fluctuation at medium and low flow caused by hydroelectric plant at Beattie's Dam. Flow regulated by reservoirs in Rockaway, Pequannock, Wanaque, and Ramapo River subbasins (see Passaic River basin, reservoirs in). Large diversions for municipal supply from Passaic River above Beattie's Dam, and from Rockaway, Pequannock, Ramapo, and Wanaque Rivers (see Passaic River basin, diversions and Hackensack River basin, diversions). In addition, the New Jersey American Water Company (formerly Commonwealth Water Co.) diverts from Canoe Brook near Summit and from Passaic River (see Passaic River basin, diversions); that company and the city of East Orange also divert water for municipal supply by pumping wells. Several measurements of water temperature, other than those published, were made during the year. National Weather Service rain-gage and gage-height and USGS satellite telemeters at station.

COOPERATION.--Gage-height record collected in cooperation with the Passaic Valley Water Commission.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	137	243	1730	410	566	615	2250	687	1240	724	280	217
2	151	501	1550	163	553	437	2260	1510	1000	610	273	202
3	249	325	1330	89	553	325	2250	2010	849	534	447	179
4	229	164	1140	151	557	253	2270	1950	735	480	328	166
5	187	257	918	299	509	231	2310	1970	648	808	264	166
6	160	948	670	305	333	346	2490	3710	619	1570	237	166
7	145	887	465	310	111	434	2590	5800	752	1550	233	170
8	261	620	384	383	86	408	2500	6210	1330	1380	263	171
9	260	336	563	553	82	372	2320	5420	1670	1130	228	159
10	204	222	359	566	78	283	2110	4920	2190	923	200	153
11	161	335	293	496	94	231	1860	5740	2210	811	292	146
12	73	112	410	508	87	242	1610	6380	1980	640	873	133
13	70	172	317	759	78	283	1400	6010	2120	530	1290	131
14	68	427	154	810	121	239	1230	5240	2020	496	1060	159
15	80	410	143	892	134	222	1210	4470	2180	445	753	432
16	131	292	143	1020	273	293	1830	4580	2720	396	564	444
17	114	492	93	971	237	197	1930	7230	2740	535	587	507
18	77	737	70	855	152	242	1890	9870	2490	576	466	417
19	72	668	87	743	72	406	1800	10200	2110	497	420	687
20	83	1590	85	653	75	410	1640	8520	1710	517	447	2670
21	90	3310	101	597	463	493	1440	6730	1490	630	383	3360
22	508	3260	116	501	1450	551	1240	5360	1360	568	341	3080
23	340	2850	122	432	1600	466	1050	4300	1370	522	356	3200
24	260	2610	227	426	1510	637	859	3970	1760	444	358	3090
25	145	2320	754	414	1320	1490	764	3730	2030	388	309	2840
26	77	2010	512	418	1180	1480	705	3350	1950	348	260	2800
27	84	1700	328	468	1000	1420	667	2980	2020	313	229	2680
28	94	2270	281	496	830	1450	616	2670	1620	304	214	2500
29	94	2020	367	475	---	1380	573	2250	1250	277	232	2160
30	89	1850	325	479	---	1470	663	1880	922	256	269	1700
31	96	---	220	539	---	2010	---	1530	---	249	249	---
MEAN	154	1131	460	522	504	623	1611	4554	1636	627	410	1163
MAX	508	3310	1730	1020	1600	2010	2590	10200	2740	1570	1290	3360
MIN	68	112	70	89	72	197	573	687	619	249	200	131

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	615	949	1263	1342	1426	2410	2105	1329	777	539	549	543
MEAN	615	949	1263	1342	1426	2410	2105	1329	777	539	549	543
MAX	5613	4757	4497	4039	3787	6755	5760	4554	4290	3124	2859	3561
(WY)	1904	1908	1903	1979	1973	1936	1983	1989	1972	1945	1942	1971
MIN	44.5	79.2	111	104	178	423	228	227	84.6	60.3	30.4	28.9
(WY)	1931	1932	1981	1981	1901	1981	1985	1965	1965	1954	1923	1964

PASSAIC RIVER BASIN

01389500 PASSAIC RIVER AT LITTLE FALLS, NJ--Continued

WATER-DISCHARGE RECORDS--Continued

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	1118		1156	
HIGHEST ANNUAL MEAN			2394	1903
LOWEST ANNUAL MEAN			269	1965
HIGHEST DAILY MEAN	10200	May 19	28000	Oct 10 1903
LOWEST DAILY MEAN	68	Oct 14	.00	Jul 3 1904
INSTANTANEOUS PEAK FLOW	10700	May 19	31700a	Oct 10 1903
INSTANTANEOUS PEAK STAGE	9.44	May 19	---	
INSTANTANEOUS LOW FLOW	58	Dec 18	.00	Jul 3 1904
10 PERCENTILE	2600		2860	
50 PERCENTILE	531		639	
95 PERCENTILE	88		83	

a Present site
e Estimated

01389500 PASSAIC RIVER AT LITTLE FALLS, NJ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1963 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1980 to November 1986 (discontinued).

WATER TEMPERATURE: Water years 1963 to 1980 (once daily), September 1980 to November 1986 (discontinued).

DISSOLVED OXYGEN: October 1970 to September 1980 (once daily).

SUSPENDED-SEDIMENT DISCHARGE: August 1963 to July 1965.

INSTRUMENTATION.--Water-quality monitor since October 1980.

REMARKS.--Missing continuous water-quality records are the result of malfunction of the instrument.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 965 microsiemens, Feb. 4, 1985; minimum, 99 microsiemens, April 6, 1984.

WATER TEMPERATURE: Maximum, 29.5°C, July 12, 1981; minimum, 0.0°C on many days during winter months.

DISSOLVED OXYGEN: Maximum daily, 14.4 mg/L, Jan. 7, 1973; minimum daily, 1.7 mg/L, June 23, 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
OCT 1988											
21...	1145	61	595	8.0	12.0	--	8.0	74	--	--	--
NOV											
18...	1040	737	375	7.7	9.0	14	11.1	95	6.9	550	580
DEC											
15...	1100	140	411	8.2	1.0	--	14.5	102	5.1	--	--
JAN 1989											
27...	1500	480	469	7.9	4.0	4.5	13.6	105	8.4	--	82
FEB											
22...	1130	1480	380	7.2	4.5	--	12.6	99	4.1	--	--
MAR											
22...	1200	550	600	7.5	6.5	9.6	12.5	101	2.8	K16	67
APR											
14...	1230	1230	310	7.5	10.0	--	12.1	107	5.7	--	--
MAY											
26...	1230	3330	213	7.5	18.5	4.0	9.0	98	1.7	K360	900
JUN											
13...	1230	2170	225	7.8	19.5	--	8.8	97	3.0	--	--
26...	1030	1920	227	7.5	23.0	--	8.2	97	2.1	--	--
JUL											
20...	1630	585	328	7.7	23.0	12	8.1	95	--	--	2200
AUG											
15...	1400	703	303	7.9	23.0	--	8.5	99	1.6	--	--
SEP											
18...	1230	411	398	7.9	20.0	--	8.5	93	2.8	--	--
28...	1200	2520	208	7.2	14.5	5.0	12.2	118	3.0	340	330

DATE	HARD- NESS TOTAL (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)	BICAR- BONATE IT-FLD (MG/L AS HCO3)	ALKA- LINITY, CARBON- ATE IT-FLD (MG/L AS CACO3)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CACO3)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)
OCT 1988											
21...	160	39	14	53	5.6	--	--	--	94	44	84
NOV											
18...	100	26	9.4	30	1.6	70	57	57	59	39	46
DEC											
15...	120	31	11	33	3.3	--	--	--	87	43	55
JAN 1989											
27...	120	30	10	38	3.2	81	66	68	74	33	65
FEB											
22...	92	24	7.7	33	2.4	--	--	--	54	25	59
MAR											
22...	110	29	9.8	71	2.8	95	78	81	63	32	120
APR											
14...	80	21	6.8	25	1.9	--	--	--	47	22	43
MAY											
26...	61	16	5.0	16	1.5	66	54	63	--	14	25
JUN											
13...	63	17	5.0	16	1.7	--	--	--	42	14	24
26...	68	18	5.6	17	1.6	--	--	--	42	16	26
JUL											
20...	100	26	8.5	28	2.6	82	67	66	65	22	42
AUG											
15...	86	23	7.0	24	2.1	--	--	--	59	21	36
SEP											
18...	100	27	8.7	34	3.6	--	--	--	65	27	53
28...	61	16	5.1	16	2.3	--	--	--	41	15	21

PASSAIC RIVER BASIN

01389500 PASSAIC RIVER AT LITTLE FALLS, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	FLUORIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)
OCT 1988										
21...	0.2	13	336	--	--	--	0.190	0.190	5.20	5.10
NOV										
18...	0.1	12	210	36	72	92	0.060	0.060	2.00	2.00
DEC										
15...	0.2	14	254	--	--	--	0.020	<0.010	2.60	2.50
JAN 1989										
27...	0.2	10	241	--	--	--	0.040	0.030	1.90	2.00
FEB										
22...	0.1	7.9	200	--	--	--	0.030	0.030	1.50	1.50
MAR										
22...	0.2	9.9	330	16	24	84	0.030	0.040	1.50	1.40
APR										
14...	0.1	7.0	160	--	--	--	0.020	0.020	1.00	1.00
MAY										
26...	0.1	6.9	120	15	135	92	0.030	0.020	0.600	0.580
JUN										
13...	0.1	8.7	116	--	--	--	0.050	0.040	0.800	0.820
26...	0.1	8.8	122	--	--	--	0.040	0.040	0.800	0.730
JUL										
20...	0.1	13	192	26	41	86	0.110	0.110	2.00	1.90
AUG										
15...	0.1	9.2	165	--	--	--	0.080	0.080	1.50	1.50
SEP										
18...	0.1	10	213	--	--	--	0.110	0.110	2.20	2.10
28...	0.1	10	113	20	136	83	0.040	0.040	0.700	0.530

DATE	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N)	PHOS- PHOROUS TOTAL (MG/L AS P)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P)	PHOS- PHOROUS, ORTHO, TOTAL (MG/L AS P)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDED TOTAL (MG/L AS C)
OCT 1988										
21...	1.30	1.20	2.0	1.9	0.930	0.880	0.830	0.790	4.1	0.9
NOV										
18...	0.910	0.960	1.9	1.8	0.630	0.430	0.420	0.360	4.8	0.8
DEC										
15...	1.40	<0.010	2.1	2.0	0.650	0.430	0.450	0.010	4.0	0.5
JAN 1989										
27...	1.50	1.40	2.1	2.0	0.440	0.340	0.360	0.280	2.9	0.7
FEB										
22...	0.800	0.800	1.1	1.0	0.390	0.220	0.230	0.180	4.0	--
MAR										
22...	0.880	0.880	1.9	1.4	0.460	0.280	--	0.230	4.8	1.1
APR										
14...	0.320	0.310	1.0	0.80	0.180	0.130	0.130	0.110	4.2	0.6
MAY										
26...	0.080	0.080	0.50	0.30	0.150	0.100	0.100	0.080	5.0	0.4
JUN										
13...	0.150	0.150	0.60	0.70	0.200	0.140	0.150	0.110	6.0	0.1
26...	0.130	0.130	0.40	0.50	0.140	0.090	0.130	0.090	4.8	1.0
JUL										
20...	0.380	0.360	1.2	0.80	0.280	0.180	0.190	0.170	4.4	0.8
AUG										
15...	0.240	0.230	1.5	0.90	0.300	0.170	0.220	0.160	4.6	1.0
SEP										
18...	0.530	0.520	1.3	1.1	0.410	0.350	0.430	0.370	4.6	1.1
28...	0.110	0.110	0.70	0.70	0.220	0.080	0.160	0.120	7.5	0.7

01389500 PASSAIC RIVER AT LITTLE FALLS, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)
OCT 1988											
21...	1145	--	--	--	--	--	--	--	--	--	--
NOV											
18...	1040	--	--	--	--	--	--	--	--	--	--
DEC											
15...	1100	--	--	--	--	--	--	--	--	--	--
JAN 1989											
27...	1500	<10	<1	17	<1	<1	<1	<3	3	65	--
FEB											
22...	1130	--	--	--	--	--	--	--	--	--	--
MAR											
22...	1200	20	<1	25	<0.5	<1	<1	<3	3	56	<5
APR											
14...	1230	--	--	--	--	--	--	--	--	--	--
MAY											
26...	1230	--	--	--	--	--	--	--	--	--	--
JUN											
13...	1230	--	--	--	--	--	--	--	--	--	--
26...	1030	--	--	--	--	--	--	--	--	--	--
JUL											
20...	1630	20	1	18	<0.5	<1	<1	<3	3	67	<1
AUG											
15...	1400	--	--	--	--	--	--	--	--	--	--
SEP											
18...	1230	--	--	--	--	--	--	--	--	--	--
28...	1200	20	<1	15	<0.5	<1	<1	<3	5	220	2

DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
OCT 1988										
21...	--	--	--	--	--	--	--	--	--	--
NOV										
18...	--	--	--	--	--	--	--	--	--	--
DEC										
15...	--	--	--	--	--	--	--	--	--	--
JAN 1989										
27...	<4	94	<0.1	<10	4	<1	<1.0	110	<6	18
FEB										
22...	--	--	--	--	--	--	--	--	--	--
MAR										
22...	<4	120	<0.1	<10	5	<1	<1.0	120	<6	11
APR										
14...	--	--	--	--	--	--	--	--	--	--
MAY										
26...	--	--	--	--	--	--	--	--	--	--
JUN										
13...	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--
JUL										
20...	<4	110	<0.1	<10	1	<1	<1.0	100	<6	3
AUG										
15...	--	--	--	--	--	--	--	--	--	--
SEP										
18...	--	--	--	--	--	--	--	--	--	--
28...	<4	49	<0.1	<10	3	<1	<1.0	64	<6	<3

01390500 SADDLE RIVER AT RIDGEWOOD, NJ

LOCATION.--Lat 40°59'05", Long 74°05'30", Bergen County, Hydrologic Unit 02030103, on left bank 15 ft upstream from bridge on State Highway 17 in Ridgewood and 2.8 mi upstream from Hohokus Brook.

DRAINAGE AREA.--21.6 mi².

PERIOD OF RECORD.--October 1954 to September 1974, October 1977 to current year. Operated as a maximum-stage gage water years 1975-77.

REVISED RECORDS.--WRD-NJ 1974: 1971.

GAGE.--Water-stage recorder. Datum of gage is 71.74 ft above National Geodetic Vertical Datum of 1929 (levels from New Jersey Geological Survey bench mark).

REMARKS.--No estimated daily discharges. Records fair. The flow past this station is affected by pumpage from wells by Hackensack Water Co. and others. Several measurements of water temperature were made during the year. Satellite telemeter at station.

EXTREMES OUTSIDE OF PERIOD OF RECORD.--Flood of July 23, 1945, reached a discharge of 6,400 ft³/s, at site 1.6 mi upstream, drainage area, 19.1 mi², by slope-area measurement.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.1	47	25	12	13	17	57	25	42	25	19	7.1
2	8.1	43	22	12	12	16	34	167	38	23	14	6.7
3	14	15	20	12	14	15	37	51	35	22	18	6.1
4	7.6	12	18	17	13	15	41	35	33	20	13	5.9
5	6.6	59	17	19	11	17	70	60	32	172	12	6.8
6	7.3	64	16	12	12	28	93	287	34	67	11	6.9
7	7.1	19	16	13	11	20	53	82	47	39	9.9	5.6
8	22	15	15	17	10	19	44	60	66	32	10	5.1
9	10	13	14	20	13	16	40	48	104	27	9.0	4.9
10	7.8	12	13	13	20	17	36	165	113	48	8.5	4.5
11	8.2	12	13	12	11	17	32	232	45	52	22	4.1
12	6.8	9.5	18	27	8.7	17	29	81	38	28	109	3.8
13	6.5	44	12	40	8.0	16	30	60	108	26	49	3.9
14	6.4	31	12	20	15	15	32	51	52	25	24	9.7
15	7.1	18	11	45	21	15	51	50	101	22	18	24
16	6.4	16	11	29	30	15	109	349	133	22	31	12
17	6.3	60	15	20	15	14	45	611	82	35	32	20
18	6.6	28	18	17	12	30	36	159	47	23	16	8.8
19	6.5	18	9.1	19	11	26	32	114	41	21	14	69
20	5.8	305	9.0	17	11	19	29	94	35	50	14	319
21	7.5	194	10	16	125	35	28	85	77	38	13	110
22	77	59	9.6	26	76	25	26	76	61	25	12	35
23	21	38	13	13	38	19	24	83	52	24	11	111
24	13	29	30	13	25	73	25	199	91	20	11	47
25	9.1	22	37	12	22	106	23	98	44	18	9.1	26
26	6.3	18	17	13	20	37	23	71	47	18	8.4	68
27	4.6	15	14	20	19	28	21	74	60	19	8.6	31
28	6.7	194	20	14	18	26	20	61	37	15	8.1	22
29	7.6	46	24	13	---	24	20	52	32	15	9.2	20
30	7.0	30	15	14	---	40	31	47	27	13	11	18
31	7.0	---	14	14	---	88	---	45	---	15	8.0	---
MEAN	10.6	49.5	16.4	18.1	22.0	27.9	39.0	118	58.5	32.2	18.2	34.1
MAX	77	305	37	45	125	106	109	611	133	172	109	319
MIN	4.6	9.5	9.0	12	8.0	14	20	25	27	13	8.0	3.8
IN.	.57	2.56	.87	.97	1.06	1.49	2.02	6.32	3.02	1.72	.97	1.76

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	21.7	35.6	37.6	35.9	43.1	55.4	61.0	44.3	28.1	21.1	19.8	19.0
MAX	104	109	109	115	86.9	104	152	118	121	87.6	77.1	70.6	
(WY)	1956	1978	1973	1979	1961	1983	1983	1989	1972	1984	1955	1971	
MIN	5.80	8.41	7.49	6.43	11.8	15.6	11.0	14.8	7.46	3.23	3.30	2.34	
(WY)	1983	1982	1981	1981	1980	1985	1985	1965	1965	1966	1980	1980	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	37.1	35.2
HIGHEST ANNUAL MEAN		58.7
LOWEST ANNUAL MEAN		16.6
HIGHEST DAILY MEAN	611	1250
LOWEST DAILY MEAN	3.8	.20
INSTANTANEOUS PEAK FLOW	971	4650
INSTANTANEOUS PEAK STAGE	5.58	12.25
INSTANTANEOUS LOW FLOW	3.6	---
ANNUAL RUNOFF (INCHES)	23.32	22.10
10 PERCENTILE	78	71
50 PERCENTILE	21	23
95 PERCENTILE	6.6	5.1

1984

1965

Nov 8 1977

Sep 17 1966

Nov 8 1977

Nov 8 1977

01391000 HOHOKUS BROOK AT HO-HO-KUS, NJ

LOCATION.--Lat 40°59'52", long 74°06'48", Bergen County, Hydrologic Unit 02030103, on left bank 500 ft upstream from bridge on Maple Avenue in Ho-Ho-Kus, and 3.5 mi upstream from mouth.

DRAINAGE AREA.--16.4 mi².

PERIOD OF RECORD.--April 1954 to September 1973, October 1977 to current year. Operated as a crest-stage partial-record station, water years 1974-77.

REVISED RECORDS.--WDR NJ-77-1: 1955(M), 1968(M), 1976(M).

GAGE.--Water-stage recorder, crest-stage gage, and concrete control. Datum of gage is 120.09 ft above National Geodetic Vertical Datum of 1929 (levels from New Jersey Geological Survey bench mark).

REMARKS.--No estimated daily discharges. Records good below 300 ft³/s and fair above. Some regulation and diurnal fluctuation at low and medium flows caused by unknown sources, possibly sewage treatment plant upstream of gage. Several measurements of water temperature were made during the year. Satellite telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	59	37	25	22	25	66	31	46	35	27	19
2	18	48	35	25	22	24	42	146	43	33	23	19
3	26	24	33	25	24	24	43	63	40	32	29	18
4	19	21	31	24	23	24	47	38	38	30	24	17
5	19	69	29	22	21	26	75	64	36	150	22	19
6	17	72	29	20	21	37	91	250	39	88	20	20
7	17	31	28	23	21	30	62	80	50	52	20	20
8	29	25	28	34	20	27	51	56	67	42	20	20
9	22	22	28	34	20	24	47	49	92	36	20	19
10	19	21	28	26	18	25	43	165	114	39	19	18
11	17	20	27	25	19	27	38	209	52	51	39	19
12	16	19	25	40	19	27	37	87	42	31	157	19
13	16	49	25	44	19	26	36	66	109	31	70	19
14	16	39	26	29	27	25	41	57	63	31	37	29
15	16	25	26	51	33	25	51	53	112	28	38	36
16	16	22	25	36	38	25	118	296	128	28	33	37
17	16	66	25	28	26	24	59	514	76	40	35	42
18	16	37	24	26	22	40	47	137	54	31	26	23
19	16	26	23	27	21	36	42	94	46	28	24	107
20	16	274	24	26	21	27	38	79	42	56	25	359
21	19	176	25	24	104	43	36	70	55	45	24	153
22	82	58	24	21	82	32	33	63	94	32	23	56
23	27	43	30	21	47	26	32	77	79	29	23	109
24	21	38	48	21	34	59	31	170	88	27	26	64
25	19	33	47	22	29	125	30	95	53	26	21	39
26	18	31	31	23	26	51	30	68	69	25	20	80
27	17	31	27	27	28	39	30	72	102	24	19	47
28	17	178	34	23	26	36	28	61	52	24	20	34
29	17	61	37	22	---	34	28	51	45	23	20	31
30	17	42	28	24	---	40	36	49	38	21	22	29
31	17	---	27	23	---	92	---	48	---	25	20	---
MEAN	20.4	55.3	29.5	27.1	29.7	36.3	46.3	108	65.5	38.5	30.5	50.7
MAX	82	274	48	51	104	125	118	514	128	150	157	359
MIN	15	19	23	20	18	24	28	31	36	21	19	17
IN.	1.44	3.77	2.07	1.91	1.89	2.55	3.15	7.62	4.45	2.71	2.15	3.45

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

MEAN	23.0	34.6	35.0	32.6	41.3	48.9	52.4	39.8	29.1	24.1	24.3	22.5
MAX	82.4	102	91.7	80.9	90.0	89.6	129	108	101	85.5	84.9	96.5
(WY)	1956	1978	1984	1979	1973	1983	1983	1989	1972	1984	1955	1971
MIN	6.21	7.10	12.3	9.07	15.3	20.8	19.4	13.9	7.58	3.91	5.17	5.78
(WY)	1965	1965	1981	1981	1980	1981	1985	1955	1965	1966	1966	1964

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	44.9	33.9
HIGHEST ANNUAL MEAN	61.3	1984
LOWEST ANNUAL MEAN	16.1	1965
HIGHEST DAILY MEAN	514	May 17
LOWEST DAILY MEAN	15	Oct 1
INSTANTANEOUS PEAK FLOW	1020	Sep 20
INSTANTANEOUS PEAK STAGE	3.37	Sep 20
INSTANTANEOUS LOW FLOW	9.3	Oct 21
ANNUAL RUNOFF (INCHES)	37.17	28.07
10 PERCENTILE	82	63
50 PERCENTILE	30	24
95 PERCENTILE	18	6.9

a From rating curve extended above 750 ft³/s by computation of peak flow over dam

01391200 SADDLE RIVER AT FAIR LAWN, NJ

LOCATION.--Lat 40°56'30", long 74°05'36", Bergen County, Hydrologic Unit 02030103, at bridge on Century Road in Fair Lawn, and 0.8 mi downstream from Hohokus Brook.

DRAINAGE AREA.--45.2 mi².

PERIOD OF RECORD.--February 1979 to current year.

COOPERATION.--Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988 27...	0800	30E	633	7.8	8.5	7.7	66	13	>24000	490
JAN 1989 19...	1330	60E	574	8.0	7.0	11.6	96	9.0	540	350
APR 11...	1100	99E	530	8.0	8.0	11.4	96	5.4	230	130
MAY 31...	1315	140E	425	8.1	18.0	8.8	93	1.6	2200	230
JUL 12...	1130	73E	430	7.9	20.5	9.0	100	2.9	4900	2300
AUG 29...	1100	64E	610	7.8	20.5	7.7	86	2.9	1300	3300

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988 27...	180	48	15	41	6.9	114	36	72	0.1
JAN 1989 19...	180	49	14	45	3.9	135	31	78	0.1
APR 11...	160	43	12	42	2.8	99	27	80	0.1
MAY 31...	160	44	11	36	2.7	102	25	65	0.1
JUL 12...	150	42	11	33	3.6	104	27	59	0.1
AUG 29...	190	50	15	48	5.7	124	34	78	0.2

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988 27...	12	299	0.320	2.49	6.50	6.5	9.0	1.35	6.1
JAN 1989 19...	9.3	311	0.197	1.86	3.50	4.3	6.2	0.81	7.4
APR 11...	8.1	274	0.205	1.74	2.15	2.8	4.5	0.53	5.7
MAY 31...	11	256	0.007	2.84	0.09	0.84	3.7	0.38	4.4
JUL 12...	10	248	0.370	3.21	0.53	1.3	4.6	0.65	5.4
AUG 29...	12	317	0.510	6.80	0.16	0.80	7.6	1.32	5.5

PASSAIC RIVER BASIN

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01391200 SADDLE RIVER AT FAIR LAWN, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SULFIDE TOTAL (MG/L AS S)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE)	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)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1988 27...	0800	<0.5	<10	2	<10	150	1	<1	8
MAY 1989 31...	1315	<0.5	10	<1	<10	90	<1	<1	6

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	PHENOLS TOTAL (UG/L)
OCT 1988 27...	190	<5	100	0.10	4	<1	20	6
MAY 1989 31...	280	2	80	<0.10	1	<1	20	3

PASSAIC RIVER BASIN

01391500 SADDLE RIVER AT LODI, NJ

LOCATION.--Lat 40°53'25", long 74°04'51", Bergen County, Hydrologic Unit 02030103, on left bank 560 ft upstream from bridge on Outwater Lane in Lodi and 3.2 mi upstream from mouth. Water-quality samples collected at bridge on Outwater Lane at high flows.

DRAINAGE AREA.--54.6 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1923 to current year.

REVISED RECORDS.--WSP 781: Drainage area. WSP 1031: 1940(M). WSP 1552: 1929(M), 1936(M), 1938. WRD-NJ 1969: 1967. WRD-NJ 1970: 1968, 1969.

GAGE.--Water-stage recorder. Concrete control since Nov. 2, 1938. Datum of gage is 25.00 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 2, 1938, at site 560 ft downstream at datum 2.54 ft lower.

REMARKS.--No estimated daily discharges. Records fair. Occasional regulation at low flow. Diversion upstream from station at Arcola by Hackensack Water Company, for municipal supply (records given herein). The flow past this station is affected by pumpage from wells by Hackensack Water Company and others. Several measurements of water temperature, other than those published, were made during the year. Satellite telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	167	90	54	52	66	186	84	131	90	74	47
2	40	142	82	53	50	63	118	359	119	85	67	45
3	48	85	78	53	55	61	120	164	111	82	79	42
4	34	75	73	49	54	60	123	108	106	80	63	41
5	34	140	69	44	50	67	199	133	102	531	58	43
6	34	227	67	48	49	94	278	675	105	243	55	47
7	35	103	66	51	48	76	169	224	117	131	55	44
8	85	84	64	75	46	63	141	156	172	112	54	42
9	45	77	62	75	44	65	127	134	301	92	51	41
10	39	75	61	56	43	64	115	343	365	95	50	39
11	35	72	59	52	44	64	102	632	138	151	123	39
12	32	68	54	83	44	68	95	241	112	87	363	38
13	31	96	54	108	42	63	96	181	293	84	221	37
14	30	87	55	69	63	61	105	158	152	82	104	69
15	31	55	56	116	68	60	136	150	242	76	102	101
16	30	48	53	85	88	59	308	922	348	77	76	82
17	30	149	51	65	55	56	141	1820	201	123	108	102
18	30	82	50	59	50	113	114	411	137	81	71	56
19	31	56	51	61	49	91	104	277	121	75	64	227
20	30	772	50	57	48	69	95	228	110	149	65	1040
21	38	623	55	52	307	111	93	202	196	141	62	524
22	217	136	52	47	231	75	88	186	162	85	60	139
23	61	101	64	49	112	64	84	214	173	79	60	240
24	46	88	89	48	87	218	85	489	206	73	58	170
25	41	80	112	47	74	329	81	272	129	69	54	98
26	38	72	65	48	67	125	82	190	129	67	51	192
27	36	69	58	55	68	98	79	196	237	68	49	115
28	35	465	78	49	62	88	77	172	121	67	49	85
29	35	144	81	45	---	86	74	145	108	63	77	78
30	34	101	61	55	---	217	112	135	96	58	56	72
31	33	---	56	53	---	336	---	131	---	61	49	---
MEAN	43.5	151	65.0	60.0	73.2	101	124	314	168	108	81.5	131
MAX	217	772	112	116	307	336	308	1820	365	531	363	1040
MIN	30	48	50	44	42	56	74	84	96	58	49	37
(†)	.20	.04	0	0	.29	.50	0	0	0	0	0	0
MEAN*	43.7	151	65.0	60.0	73.5	102	124	314	168	108	81.5	131

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	62.9	88.5	99.7	104	121	156	157	118	84.1	72.0	67.8	68.9
MEAN	62.9	88.5	99.7	104	121	156	157	118	84.1	72.0	67.8	68.9
MAX	257	284	301	331	257	333	457	315	336	371	225	256
(WY)	1956	1978	1984	1979	1973	1953	1983	1984	1972	1945	1955	1971
MIN	16.5	25.5	17.0	12.1	38.1	40.1	32.9	44.9	31.8	14.1	15.1	11.4
(WY)	1936	1982	1981	1981	1980	1981	1985	1941	1965	1966	1966	1932

01391500 SADDLE RIVER AT LODI, NJ--Continued

WATER-DISCHARGE RECORDS--Continued

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	119	Unadjusted	99.7	Unadjusted
AVERAGE FLOW *	119		---	
HIGHEST ANNUAL MEAN			187	1984
LOWEST ANNUAL MEAN			45.2	1981
HIGHEST DAILY MEAN	1820	May 17	2970	Apr 5 1984
LOWEST DAILY MEAN	30	Oct 14	6.0	Aug 4 1930
INSTANTANEOUS PEAK FLOW	2380	May 17	4500	Nov 9 1977
INSTANTANEOUS PEAK STAGE	7.08	May 17	12.36a	Nov 9 1977
INSTANTANEOUS LOW FLOW	22	Jan 5	1.0	May 25 1938
10 PERCENTILE	219		194	
50 PERCENTILE	77		69	
95 PERCENTILE	36		21	

a From high-water mark in gage house

† Diversion, equivalent in cubic feet per second, above station by Hackensack Water Company for municipal supply.

* Records provided by Hackensack Water Company.

* Adjusted for diversion.

PASSAIC RIVER BASIN

01391500 SADDLE RIVER AT LODI, NJ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1962 to current year.

COOPERATION.--Analysis of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, EC BROTH (MPN)	STREP- TOCOCCI FECAL (MPN)
OCT 1988										
11...	1030	30	633	7.7	13.0	5.3	51	7.1	2400	790
FEB 1989										
02...	1300	46	645	8.1	8.5	9.0	77	9.0	3500	260
APR										
11...	1300	103	540	8.2	10.5	10.2	91	6.0	70	20
JUN										
14...	1230	142	390	7.9	16.5	7.9	81	3.9	3300	3300
JUL										
12...	0945	84	440	8.0	20.0	6.2	68	3.6	3300	700
AUG										
28...	1100	46	620	7.7	19.5	7.3	79	3.9	800	2300

DATE	HARD- NESS TOTAL (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)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT 1988									
11...	200	52	16	45	4.8	129	35	80	0.1
FEB 1989									
02...	190	53	15	44	4.2	151	36	84	0.1
APR									
11...	170	47	12	42	2.9	116	30	75	0.1
JUN									
14...	140	39	9.4	30	2.8	96	23	54	0.1
JUL									
12...	150	43	11	34	3.5	109	28	62	<0.1
AUG									
28...	200	55	15	47	4.6	133	34	80	0.1

DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHOROUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988									
11...	11	321	0.525	3.50	3.05	3.4	6.9	1.40	5.7
FEB 1989									
02...	9.2	336	0.240	2.25	4.40	4.6	6.9	0.87	5.5
APR									
11...	8.7	287	0.165	1.98	1.55	2.2	4.2	0.44	5.2
JUN									
14...	11	227	0.083	2.27	0.19	0.75	3.0	0.35	6.5
JUL									
12...	11	258	0.280	2.87	0.52	1.4	4.3	0.56	5.5
AUG									
28...	12	327	0.220	4.97	0.48	1.2	6.1	1.03	4.8

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

PASSAIC RIVER BASIN

01392210 THIRD RIVER AT PASSAIC, NJ

LOCATION---Lat 40°49'47", long 74°08'32", Passaic County, Hydrologic Unit 02030103, on right bank 400 ft upstream from bridge on State Highway 3, 0.8 mi south of Passaic, 1.2 mi upstream from Passaic River.

DRAINAGE AREA---11.8 mi².

PERIOD OF RECORD---May 1977 to current year.

GAGE---Water-stage recorder. Datum of gage is 22.15 ft above National Geodetic Vertical Datum of 1929.

REMARKS---No estimated daily discharges. Records fair. Some regulation from ponds upstream. Several measurements of water temperature were made during the year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.8	83	14	9.0	9.6	18	29	16	28	14	12	9.7
2	16	17	13	8.8	9.1	18	16	140	18	14	11	9.4
3	13	9.5	12	8.3	13	14	21	20	17	13	66	9.1
4	6.7	8.8	11	8.1	9.4	12	17	15	17	13	13	8.0
5	6.3	57	11	8.3	8.6	13	29	40	17	229	13	8.5
6	5.9	23	11	8.6	9.5	23	39	125	24	32	11	8.8
7	7.4	11	11	11	9.0	13	19	24	25	24	11	8.7
8	33	9.6	10	38	8.6	14	25	18	23	26	11	8.3
9	7.6	8.8	9.7	15	8.4	12	19	16	115	17	10	8.4
10	6.6	9.0	9.3	9.6	11	12	14	122	68	18	9.5	8.1
11	6.2	8.6	9.0	9.3	8.4	11	13	71	19	19	49	7.9
12	6.1	7.7	9.6	39	8.1	11	13	27	16	15	183	7.9
13	6.2	55	9.1	16	8.0	11	16	21	94	16	62	7.7
14	6.0	14	9.0	11	22	11	14	19	22	15	56	23
15	5.9	9.6	8.7	41	21	11	47	17	38	14	31	20
16	5.7	9.6	8.5	13	15	11	60	235	31	23	29	44
17	5.9	73	8.3	11	9.5	11	19	250	21	37	22	26
18	5.9	14	9.1	10	8.7	36	16	56	16	14	14	10
19	5.7	11	8.3	11	8.4	16	15	38	15	14	29	134
20	5.5	255	8.2	10	8.4	12	13	31	14	38	16	226
21	25	58	12	9.4	130	31	13	26	24	19	14	81
22	73	20	9.8	12	40	12	12	25	14	14	13	22
23	9.6	17	21	9.4	19	11	12	85	163	14	40	34
24	9.1	15	31	9.8	15	118	12	127	47	13	16	18
25	8.6	14	17	11	15	54	11	37	21	13	12	15
26	7.6	13	9.8	13	14	19	11	28	38	13	11	58
27	7.2	18	8.9	12	17	15	11	37	42	12	10	17
28	7.0	140	24	9.0	14	13	11	24	22	15	11	15
29	6.8	20	14	8.8	---	12	11	21	17	11	11	14
30	6.6	15	8.9	30	---	46	39	20	15	11	12	13
31	7.2	---	9.1	11	---	59	---	17	---	11	10	---
MEAN	10.8	34.1	11.8	13.9	17.1	21.9	19.9	56.4	34.7	24.2	26.4	29.3
MAX	73	255	31	41	130	118	60	250	163	229	183	226
MIN	5.5	7.7	8.2	8.1	8.0	11	11	15	14	11	9.5	7.7
IN.	1.06	3.23	1.15	1.36	1.51	2.14	1.88	5.51	3.28	2.37	2.58	2.78

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	14.5	23.9	21.2	22.4	20.6	24.9	31.0	29.3	17.9	18.5	18.4	16.6
MEAN	14.5	23.9	21.2	22.4	20.6	24.9	31.0	29.3	17.9	18.5	18.4	16.6
MAX	22.6	66.1	60.2	64.3	31.0	48.1	70.4	56.4	34.7	31.7	44.1	29.3
(WY)	1978	1978	1984	1979	1984	1983	1983	1989	1989	1984	1978	1989
MIN	6.00	9.31	7.55	7.25	10.4	9.94	7.56	12.9	9.61	9.58	7.44	8.43
(WY)	1983	1982	1981	1981	1980	1985	1985	1982	1987	1977	1981	1982

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	25.1	21.6
HIGHEST ANNUAL MEAN	255	32.7
LOWEST ANNUAL MEAN	5.5	13.7
HIGHEST DAILY MEAN	1120	798
LOWEST DAILY MEAN	5.64	3.9
INSTANTANEOUS PEAK FLOW	4.9	2300
INSTANTANEOUS PEAK STAGE	28.88	8.25
INSTANTANEOUS LOW FLOW	48	.84
ANNUAL RUNOFF (INCHES)	14	24.86
10 PERCENTILE	6.9	41
50 PERCENTILE		12
95 PERCENTILE		5.3

RESERVOIRS IN PASSAIC RIVER BASIN

- 01379990 SPLITROCK RESERVOIR.--Lat 40°57'40", long 74°27'45", Morris County, Hydrologic Unit 02030103, at dam on Beaver Brook, 2 mi northeast of Hibernia. DRAINAGE AREA, 5.50 mi². PERIOD OF RECORD, September 1925 to September 1931, December 1948 to September 1950, October 1953 to current year. Monthend contents only 1925-31, 1948-50, published in WSP 1302. October 1950 to September 1953 in Special Report 16, New Jersey Department of Environmental Protection. GAGE, water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. REMARKS.--Reservoir is formed by a concrete gravity dam with earth embankment; present dam constructed 1946-48 and sluice gate first closed Dec. 22, 1948. Prior to 1946, reservoir was formed by earthfill dam with crest about 20 ft lower. Capacity of spillway level, 3,310,000,000 gal, elevation, 835 ft. Flow is regulated by two 30-inch sluice gates. Flow is released for diversion for municipal supply of Jersey City. COOPERATION.--Records provided by Jersey City, Bureau of Water. EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 3,652,500,000 gal, Apr. 5, 1973, elevation, 836.75 ft; minimum, 1,522,800,000 gal, Jan. 4, 1954, elevation, 824.20 ft. EXTREMES FOR CURRENT YEAR.--Maximum contents, 3,524,000,000 gal, May 17, elevation, 836.10 ft; minimum, 3,157,000,000 gal, Oct. 21, 30, 31, Nov. 1, elevation, 834.25 ft.
- 01380900 BOONTON RESERVOIR.--Lat 40°53', long 74°24', Morris County, Hydrologic Unit 02030103, at dam on Rockaway River at Boonton. DRAINAGE AREA, 119 mi². PERIOD OF RECORD, April 1904 to September 1950, October 1953 to current year. Monthend contents only 1904-50, published in WSP 1302. October 1950 to September 1953 in Special Report 16, New Jersey Department of Environmental Protection. REVISED RECORDS.--WDR NJ-85-1: 1984. GAGE, hook gage. Datum of gage is National Geodetic Vertical Datum of 1929. REMARKS.--Reservoir is formed by a cyclopean masonry dam with earth wings; dam completed and storage began in 1904. Total capacity at spillway level, 7,620,000,000 gal elevation, 305.25 ft of which 7,366,000,000 gal is usable contents above elevation 259.75 ft, sill of lowest outlet gate. Spillway is topped with two Bascule gates, 2 ft high; prior to 1952, flashboards were used. Flow regulated by Bascule gates, three outlets in gatehouse at head of conduit and by two 48-inch pipes (bottom of sluice pipes at elevation 205 ft). Water is diverted from reservoir for municipal supply of Jersey City. COOPERATION.--Records provided by Jersey City, Bureau of Water. EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 8,545,600,000 gal, May 31, 1984, elevation, 308.81 ft; minimum, 1,445,000,000 gal, Jan. 31, 1981, elevation 274.71 ft. EXTREMES FOR CURRENT YEAR.--Maximum contents, 8,370,000,000 gal, May 18, elevation, 308.71 ft; minimum, 6,999,000,000 gal, Sept. 30, elevation, 303.35 ft.
- 01382100 CANISTEAR RESERVOIR.--Lat 41°06'30", long 74°29'30", Sussex County, Hydrologic Unit 02030103, at dam on Pacock Brook, 1.8 mi northeast of Stockholm. DRAINAGE AREA, 5.6 mi². PERIOD OF RECORD, October 1923 to September 1950, October 1953 to current year. Monthend contents 1923-50, published in WSP 1302. October 1950 to September 1953 in Special Report 16, New Jersey Department of Environmental Protection. GAGE, staff gage. Datum of gage is National Geodetic Vertical Datum of 1929. REMARKS.--Reservoir is formed by earth-embankment type dam, completed about 1896. Capacity at spillway level, 2,407,000,000 gal, elevation, 1,086.0 ft. Reservoir used for storage and water released for diversion at Macopin intake dam on Pequannock River prior to May 21, 1961, and for diversion at Charlotteburg Reservoir on Pequannock River since May 21, 1961, for municipal supply for City of Newark. Outflow is controlled mostly by operation of gates in pipes through dam. COOPERATION.--Records provided by City of Newark, Division of Water Supply.
- 01382200 OAK RIDGE RESERVOIR.--Lat 41°02'30", long 74°30'10", Passaic County, Hydrologic Unit 02030103, at dam on Pequannock River, 0.9 mi southwest of Oak Ridge. DRAINAGE AREA, 27.3 mi². PERIOD OF RECORD, October 1923 to September 1950, October 1953 to current year. Monthend contents only 1924-50, published in WSP 1302. October 1950 to September 1953 in Special Report 16, New Jersey Department of Environmental Protection. GAGE, staff gage. Datum of gage is National Geodetic Vertical Datum of 1929. REMARKS.--Reservoir is formed by earthfill dam with concrete-core wall and ogee overflow section; dam constructed between 1880-92; dam raised 10 ft during 1917-19. Capacity at spillway level, 3,895,000,000 gal, elevation, 846.0 ft. Reservoir used for storage and water released for diversion at Macopin intake dam on Pequannock River prior to May 21, 1961, and diversion at Charlotteburg Reservoir on Pequannock River since May 21, 1961, for municipal supply of City of Newark. Outflow is controlled mostly by operation of gates in pipes through dam. COOPERATION.--Records provided by City of Newark, Division of Water Supply.
- 01382300 CLINTON RESERVOIR.--Lat 41°04'30", long 74°27'00", Passaic County, Hydrologic Unit 02030103, at dam on Clinton Brook, 2.0 mi north of Newfoundland. DRAINAGE AREA, 10.5 mi². PERIOD OF RECORD, October 1923 to September 1950, October 1953 to current year. Monthend contents only 1923-50, published in WSP 1302. October 1950 to September 1953 in Special Report 16, New Jersey Department of Environmental Protection. GAGE, staff gage. Datum of gage is National Geodetic Vertical Datum of 1929. REMARKS.--Reservoir is formed by earthfill dam constructed between 1889-92. Capacity at spillway level, 3,518,000,000 gal, elevation, 992.0 ft. Reservoir used for storage and water released for diversion at Macopin intake dam on Pequannock River prior to May 21, 1961, and for diversion at Charlotteburg Reservoir since May 21, 1961, for municipal supply of City of Newark. Outflow is controlled mostly by operation of gates in pipes through dam. COOPERATION.--Records provided by City of Newark, Division of Water Supply.
- 01382380 CHARLOTTEBURG RESERVOIR.--Lat 41°01'34", long 74°25'30", Passaic County, Hydrologic Unit 02030103, at dam on Pequannock River, 1.1 mi upstream from Macopin River, and 1.5 mi southeast of Newfoundland, NJ. DRAINAGE AREA, 56.2 mi². PERIOD OF RECORD, May 1961 to current year. REVISED RECORDS.--WRD NJ-74: Station number. GAGE, water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. REMARKS.--Reservoir is formed by concrete-masonry dam and earth embankment, with concrete spillway at elevation 738.00 ft; storage began May 19, 1961. Spillway equipped with Bascule gate 5 ft high. Capacity, 2,964,000,000 gal, elevation, 743.00 ft, top of Bascule gate. No dead storage. Outflow is controlled by sluice and automatic Bascule gates. Water diverted from reservoir since May 21, 1961, for municipal supply of City of Newark. COOPERATION.--Records provided by City of Newark, Division of Water Supply.

RESERVOIRS IN PASSAIC RIVER BASIN--Continued

01382400 ECHO LAKE.--Lat 41°03'00", long 74°24'30", Passaic County, Hydrologic Unit 02030103, at Echo Lake Dam on Macopin River, 1.6 mi north of Charlotteburg, and 1.9 mi upstream from mouth. DRAINAGE AREA, 4.35 mi². PERIOD OF RECORD, October 1927 to September 1950, October 1953 to current year. Monthend contents only 1928-50, published in WSP 1302. October 1950 to September 1953 in Special Report 16, New Jersey Department of Environmental Protection. GAGE, staff gage. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--Lake is formed by earth-embankment type dam completed about 1925. Capacity at spillway level, 1,583,000,000 gal, elevation, 893.0 ft, with provision for additional storage of 180,000,000 gal at elevation 894.9 ft with flashboards. Usable contents, 1,045,000,000 gal above elevation 880.0 ft. Lake used for storage and water released for diversion at Macopin intake dam on Pequannock River prior to May 21, 1961, and water diverted to Charlotteburg Reservoir on Pequannock River since May 21, 1961, for municipal supply of City of Newark. Outflow to Macopin River controlled by operation of gates in gatehouse at dam and water released through pipe and canal to Charlotteburg Reservoir.

COOPERATION.--Records provided by City of Newark, Division of Water Supply.

01383000 GREENWOOD LAKE.--Lat 41°09'36", long 74°20'03", Passaic County, Hydrologic Unit 02030103, in gatehouse near right end of Greenwood Lake Dam on Wanaque River at Awosting. DRAINAGE AREA, 27.1 mi². PERIOD OF RECORD, June 1898 to November 1903, June 1907 to current year (gage heights only prior to October 1953). GAGE, water-stage recorder. Datum of gage is 608.86 ft National Geodetic Vertical Datum of 1929 (levels from New Jersey Geological Survey bench mark). Prior to Oct. 1, 1931, staff gage on former railroad bridge at site 100 ft upstream at datum 89.75 ft lower.

REMARKS.--Reservoir is formed by earthfill dam with concrete spillway; dam completed about 1837 and reconstruction completed in 1928 with crest of spillway 0.25 ft lower. Usable capacity, 6,860,000,000 gal between gage heights -4.00 ft, sill of gate, and 10.00 ft, crest of spillway. Dead storage, 7,140,000,000 gal. Outflow mostly regulated by two gates, 3.5 by 5.0 ft. Records given herein represent usable capacity. Lake used for recreation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 9,528,000,000 gal, Oct. 9-14, 1903, gage height, 14.25 ft, present datum; minimum, 3,160,000,000 gal, several days in November 1900, gage height, 3.50 ft, present datum.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 7,732,000,000 gal, May 17, gage height, 11.40 ft; minimum, 6,768,000,000 gal, Sept. 13, 14, gage height, 9.85 ft.

01384002 MONKSVILLE RESERVOIR.--Lat 41°07'20", long 74°17'49", Passaic County, Hydrologic Unit 02030103, at dam on Wanaque River at Monks. DRAINAGE AREA, 40.4 mi². PERIOD OF RECORD, September 1988 to current year. GAGE, measurement from reference point. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by a Roller Compacted Concrete dam constructed in 1988. Total capacity at spillway level, 7,000,000,000 gal, elevation 400.0 ft. Reservoir used for storage and water released to Wanaque Reservoir. Outflow is controlled by a 60-inch fixed-cone valve in a 72-inch pipe and 10-inch cone valve which can discharge directly into Wanaque Reservoir or into the 72-inch pipe.

COOPERATION.--Records provided by North Jersey District Water Supply Commission.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 7,140,000,000 gal, NOV. 21, 1989, elevation 400.9 ft; minimum, 860,000,000 gal, Sept. 28, 1988 (first filling), elevation 339.0 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 7,140,000,000 gal, Nov. 21, elevation 400.9 ft; minimum, 7,010,000,000 gal, Sept. 5, elevation 400.0 ft.

01386990 WANAQUE RESERVOIR.--Lat 41°02'42", long 74°17'44", Passaic County, Hydrologic Unit 02030103, at Raymond Dam on Wanaque River at Wanaque. DRAINAGE AREA, 90.4 mi². PERIOD OF RECORD, February 1928 to September 1950, October 1953 to current year. Monthend contents only 1928-50, published in WSP 1302. October 1950 to September 1953 in Special Report 16, New Jersey Department of Environmental Protection. GAGE, water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by North Jersey District Water Supply Commission).

REMARKS.--Reservoir is formed by earthfill with concrete-core wall main dam and seven secondary dams; dams completed in 1927 and storage began in March 1928. Total capacity at spillway level, 29,630,000,000 gal, revised, elevation, 302.4 ft, revised, prior to 1936 300.3 ft. Capacity available by gravity at spillway level, 27,850,000,000 gal, revised. Outflow mostly controlled by sluice gates in intake conduits in gage house. Water is diverted from reservoir for municipal supply. Diversion to reservoir from Posts Brook and Ramapo River (see Passaic River basin, diversions).

COOPERATION.--Records provided by North Jersey District Water Supply Commission.

REVISED RECORDS.--WDR NJ-85-1: 1984 (M).

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 31,280,000,000 gal, Apr. 5, 1984, elevation, 304.52 ft; minimum, 5,110,000,000 gal, Dec. 26, 1964, elevation, 256.06 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 30,490,000,000 gal, May 17, elevation, 303.51 ft; minimum, 12,350,000,000 gal, Nov. 1, elevation, 274.72 ft.

MONTHEND ELEVATION AND CONTENTS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

Date	Elevation (feet)*	Contents (million gallons)	Change in contents (equivalent in ft ³ /s)	Elevation (feet)*	Contents (million gallons)	Change in contents (equivalent in ft ³ /s)	Elevation (feet)†	Contents (million gallons)	Change in contents (equivalent in ft ³ /s)
01379990 SPLITROCK RESERVOIR				01380900 BOONTON RESERVOIR			01382100 CANISTEAR RESERVOIR		
Sept. 30...	834.55	3,217	-	303.35	6,999	-	1,084.80	2,282	-
Oct. 31...	834.25	3,157	-3.0	299.90	6,140	-42.9	1,084.40	2,242	-2.0
Nov. 30...	835.25	3,355	+10.2	305.65	7,580	+74.3	1,086.10	2,417	+9.0
Dec. 31...	835.10	3,326	-1.4	305.31	7,490	-4.5	1,086.00	2,407	-5
CAL YR 1988			-1			-0.05			0
Jan. 31...	835.10	3,326	0	305.35	7,500	+5	1,086.00	2,407	0
Feb. 28...	835.20	3,346	+1.1	305.44	7,520	+1.1	1,086.00	2,407	0
Mar. 31...	835.35	3,375	+1.4	307.62	8,080	+27.9	1,086.10	2,417	+5
Apr. 30...	835.15	3,335	-2.1	307.37	8,020	-3.1	1,086.00	2,407	-5
May 31...	835.25	3,356	+1.0	307.50	8,050	+1.5	1,086.00	2,407	0
June 30...	835.20	3,346	-5	307.44	8,040	-5	1,086.00	2,407	0
July 31...	834.85	3,276	-3.5	306.81	7,870	-8.5	1,085.90	2,396	-5
Aug. 31...	834.65	3,237	-1.9	305.42	7,520	-17.5	1,085.60	2,365	-1.6
Sept. 30...	835.05	3,316	+4.1	307.40	8,030	+26.3	1,086.00	2,407	+2.2
WTR YR 1989			+4			+4.4			+5

RESERVOIRS IN PASSAIC RIVER BASIN--Continued

MONTHEND ELEVATION AND CONTENTS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

Date	Elevation (feet)†	Contents (million gallons)	Change in contents (equivalent in ft ³ /s)	Elevation (feet)†	Contents (million gallons)	Change in contents (equivalent in ft ³ /s)	Elevation (feet)†	Contents (million gallons)	Change in contents (equivalent in ft ³ /s)
01382200 OAK RIDGE RESERVOIR				01382300 CLINTON RESERVOIR			01382380 CHARLOTTEBURG RESERVOIR		
Sept. 30...	809.50	332	-	980.00	2,058	-	731.10	1,759	-
Oct. 31...	795.60	25.3	-15.3	967.30	897	-57.9	733.95	2,011	+12.6
Nov. 30...	819.80	913	+45.8	974.70	1,518	+32.0	737.20	2,324	+16.1
Dec. 31...	820.60	972	+2.9	976.10	1,654	+6.8	730.15	1,679	-32.2
CAL YR 1988			-12.3			-8.0			-.4
Jan. 31...	820.70	979	+4	976.30	1,674	+1.0	730.40	1,700	+1.0
Feb. 28...	822.40	1,119	+7.7	977.40	1,784	+6.1	730.50	1,708	+5
Mar. 31...	831.50	2,015	+44.7	981.80	2,249	+23.2	731.70	1,811	+5.1
Apr. 30...	841.80	3,312	+66.9	986.40	2,782	+27.5	732.85	1,912	+5.2
May 31...	846.10	3,909	+29.8	992.30	3,556	+38.7	742.45	2,900	+49.3
June 30...	846.10	3,909	0	992.20	3,544	-.7	742.80	2,941	+2.1
July 31...	845.90	3,881	-1.4	992.00	3,518	-1.3	732.50	1,881	-52.9
Aug. 31...	838.70	2,901	-48.9	990.20	3,288	-11.5	732.60	1,889	+4
Sept. 30...	838.60	2,888	-.7	989.20	3,160	-6.6	731.55	1,798	-4.7
WTR YR 1989			+10.8			+4.7			+2

Date	Elevation (feet)†	Contents (million gallons)	Change in contents (equivalent in ft ³ /s)	Elevation (feet)**	Contents (million gallons)	Change in contents (equivalent in ft ³ /s)	Elevation (feet)†	Contents (million gallons)	Change in contents (equivalent in ft ³ /s)
01382400 ECHO LAKE				01383000 GREENWOOD LAKE			01384002 MONKSVILLE RESERVOIR		
Sept. 30...	891.90	1,484	-	11.03	7,499	-	400.1	7,020	-
Oct. 31...	891.60	1,458	-1.3	10.18	6,972	-26.3	400.1	7,020	0
Nov. 30...	892.90	1,574	+6.0	10.39	7,102	+6.7	400.4	7,060	+2.1
Dec. 31...	892.90	1,574	0	10.15	6,953	-7.4	a400.3	7,040	-1.0
CAL YR 1988			-.04			-.1			0
Jan. 31...	892.10	1,502	-3.6	10.14	6,947	-.3	a400.3	7,040	0
Feb. 28...	890.40	1,353	-8.2	10.21	6,990	+2.4	400.4	7,060	+1.0
Mar. 31...	889.00	1,234	-5.9	10.44	7,133	+7.1	400.5	7,080	+1.0
Apr. 30...	890.40	1,353	+6.1	10.15	6,953	-9.3	a400.2	7,030	-2.8
May 31...	893.10	1,592	+11.9	10.25	7,015	+3.1	a400.5	7,080	+2.9
June 30...	893.00	1,583	-.5	10.14	6,947	-3.5	a400.3	7,040	-1.8
July 31...	892.90	1,574	-.5	10.02	6,872	-3.7	a400.1	7,020	-1.1
Aug. 31...	893.00	1,583	+5	10.01	6,866	-.3	400.2	7,030	+4
Sept. 30...	893.10	1,592	+5	10.32	7,058	+9.9	400.6	7,090	+3.0
WTR YR 1989			+5			-1.9			+3

Date	Elevation (feet)†	Contents (million gallons)	Change in contents (equivalent in ft ³ /s)
01386990 WANAQUE RESERVOIR			
Sept. 30...	279.79	14,880	-
Oct. 31...	274.90	12,430	-122
Nov. 30...	288.77	20,030	+391
Dec. 31...	294.07	23,530	+175
CAL YR 1988			-5.8
Jan. 31...	292.19	22,260	-63.8
Feb. 28...	295.52	24,540	+126
Mar. 31...	301.83	29,190	+232
Apr. 30...	301.97	29,300	+5.7
May 31...	302.46	29,680	+19.0
June 30...	302.35	29,590	-4.6
July 31...	299.85	27,670	-95.8
Aug. 31...	296.10	24,940	-136
Sept. 30...	295.01	24,180	-39.2
WTR YR 1989			+39.4

- a Elevation taken a few days prior to end of month.
 e Estimated.
 * Elevation at 0900.
 ** Gage height at 2400.
 † Elevation at 0800 on first day of following month.

PASSAIC RIVER BASIN

DIVERSIONS WITHIN PASSAIC RIVER BASIN

- 01368720 North Jersey District Water Supply Commission diverts water from Upper Greenwood Lake (Hudson River basin) near Moe, NJ to the Green Brook, a tributary of Greenwood Lake, for municipal supply. Consult North Jersey District Water Supply Commission for data available.
- 01379510 New Jersey-American Water Company (formerly Commonwealth Water Company) diverts water from Passaic River, 1.2 mi upstream from Canoe Brook for municipal supply. These figures also include water diverted from the Passaic River by the Bernards Division of the Commonwealth Water Company. Records provided by New Jersey-American Water Company.
- 01379530 New Jersey-American Water Company (formerly Commonwealth Water Company) diverts water from Canoe Brook near Summit, 0.5 mi from mouth, for municipal supply. Records provided by New Jersey-American Water Company.
- 01380800 Jersey City diverts water from Boonton Reservoir on Rockaway River at Boonton for municipal supply. Records provided by Jersey City, Bureau of Water.
- 01382370 City of Newark diverts water from Charlotteburg Reservoir on Pequannock River since May 21, 1961 for municipal supply. Prior to May 21, 1961 water was diverted from reservoir formed by Macopin intake dam on Pequannock River (former diversion 01382490). Records provided by City of Newark, Division of Water Supply.
REVISED RECORDS.--WDR NJ-82-1: Station number.
- 01386980 North Jersey District Water Supply Commission diverts water for municipal supply from Wanaque Reservoir on Wanaque River. Records provided by North Jersey District Water Supply Commission.
- 01387020 North Jersey District Water Supply Commission diverts water from Post Brook near Wanaque into Wanaque Reservoir for municipal supply. Records not available.
- 01387990 North Jersey District Water Supply Commission diverts water from Ramapo River by pumping from Pompton Lakes into Wanaque Reservoir. Records provided by North Jersey District Water Supply Commission.
- 01388490 Passaic Valley Water Commission supplements the dependable yield of its supply at Little Falls by diverting water at high flows at the Jackson Avenue Pumping Station into Point View Reservoir on Haycock Brook for release as required to sustain minimum flow requirements. Also water may be released into Haycock Brook for maintenance of flow in that stream. These diversions and releases occur upstream of Pompton Plains gaging station. Records provided by Passaic Valley Water Commission. No diversion or release during the year.
REVISED RECORDS.--WDR NJ-82-1: Station number.
- 01388980 North Jersey District Water Supply Commission diverts water from the Wanaque South pumping station on the Pompton River at Two Bridges, 750 ft upstream from the Passaic River, to Wanaque Reservoir. Record provided by the North Jersey District Water Supply Commission.
- 01388981 Hackensack Water Company diverts water from the Wanaque South pumping station on the Pompton River at Two Bridges, 750 ft upstream from the Passaic River, to Oradell Reservoir. Water can also be diverted from Wanaque Reservoir to Oradell Reservoir in the Hackensack River basin. Figures given herein include diversion from both sources. Prior to water year 1989 diversion was from Ramapo River at Pompton Lakes (see station 01387991). Records provided by the Hackensack Water Company.
- 01389490 The Passaic Valley Water Commission diverts water from Passaic River above Beattie's Dam at Little Falls for municipal supply. Records provided by Passaic Valley Water Commission.

DIVERSIONS, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

MONTH	01379510 NJ-AMERICAN WATER COMPANY FROM PASSAIC RIVER	01379530 NJ-AMERICAN WATER COMPANY FROM CANOE BROOK	01380800 JERSEY CITY	01382370 NEWARK
October.....	10.8	2.15	74.8	83.0
November.....	57.4	14.2	75.5	67.1
December.....	21.4	4.30	35.0	84.8
CAL YR 1988.....	22.4	6.88	71.7	98.6
January.....	37.9	2.54	71.6	71.1
February.....	34.8	3.91	70.0	72.0
March.....	35.7	4.08	80.6	59.0
April.....	13.8	10.1	90.1	45.7
May.....	16.9	12.7	83.4	77.8
June.....	1.45	11.6	86.4	82.1
July.....	0	6.28	85.0	93.9
August.....	.99	5.56	83.9	89.5
September.....	2.99	15.8	82.7	91.0
WTR YR 1989.....	19.4	7.75	76.7	76.4

DIVERSIONS WITHIN PASSAIC RIVER BASIN--Continued

DIVERSIONS, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, Continued

MONTH	01386980 WANAQUE RESERVOIR	01387990 RAMAPO RIVER TO WANAQUE RESERVOIR	01388980 POMPTON RIVER TO WANAQUE RESERVOIR	01388981 POMPTON RIVER TO ORADELL RESERVOIR	01389490 PASSAIC VALLEY WATER COMMISSION
October.....	161	0	72.8	63.4	73.4
November.....	166	0	297	6.0	72.6
December.....	195	0	286	0	85.2
CAL YR 1988.....	151	0	---	25.3	78.6
January.....	180	0	32.5	0	76.7
February.....	177	0	305	43.0	76.3
March.....	179	0	327	46.4	69.2
April.....	166	0	0	0	83.6
May.....	142	0	0	.44	76.3
June.....	157	0	0	2.2	85.3
July.....	143	0	0	2.7	87.3
August.....	173	0	0	4.4	74.3
September.....	174	0	0	10.1	72.7
WTR YR 1989.....	168	0	110	14.8	77.7

ELIZABETH RIVER BASIN

01393450 ELIZABETH RIVER AT URSINO LAKE, AT ELIZABETH, NJ

LOCATION---Lat 40°40'30", long 74°13'20", Union County, Hydrologic Unit 02030104, on left bank at Ursino Lake Dam in Elizabeth, 75 ft upstream of bridge on Trotters Lane and 3.8 mi upstream from mouth.

DRAINAGE AREA--16.9 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD---October 1921 to current year.

REVISED RECORDS---WSP 1552: Drainage area, 1922-23, 1927-29(M), 1932, 1933-34(M), 1938(P), 1942(M) 1944(P), 1945(M), 1948(P), 1952-53(M). WDR NJ-84-1: 1974.

GAGE---Water-stage recorder, crest-stage gages, and two concrete weirs. The right concrete weir was lowered 5 ft on Dec. 18, 1985. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Oct. 1, 1922, nonrecording gage at site 2,800 ft downstream at datum 4.14 ft higher and Oct. 1, 1922 to May 18, 1923, at same site at datum 5.23 ft higher. May 19, 1923 to Dec. 27, 1972, at site 2,800 ft downstream at datum 5.23 ft higher and published as "Elizabeth River at Elizabeth" (station 01393500).

REMARKS---No estimated daily discharges. Records good. Diversion by pumpage from Hammock Well Field in Union for municipal supply by Elizabethtown Water Co., probably reduces the flow past the station. Several measurements of water temperature, other than those published, were made during the year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.2	178	12	6.8	8.0	9.5	29	24	12	8.4	9.0	7.6
2	28	24	10	6.8	7.0	8.7	14	218	12	8.5	9.2	8.6
3	14	11	9.4	7.2	16	9.7	30	27	11	8.0	23	6.6
4	6.0	7.4	8.0	7.2	7.1	8.3	18	17	12	7.9	8.3	6.1
5	5.6	64	7.9	6.8	6.0	11	54	67	11	418	8.2	6.7
6	5.1	16	8.5	7.6	9.2	28	61	182	64	74	7.3	6.6
7	10	8.7	8.6	7.7	6.8	12	20	30	38	33	14	6.6
8	54	7.5	7.8	48	6.3	11	43	16	23	84	8.1	6.5
9	6.4	7.5	7.7	13	6.2	10	21	13	195	15	6.7	6.4
10	5.6	7.6	7.5	9.4	6.3	9.0	13	276	158	13	6.3	6.3
11	5.5	7.7	7.1	9.7	5.8	8.4	12	104	22	24	85	6.3
12	5.2	5.5	7.1	65	5.6	8.0	12	31	14	11	271	6.4
13	5.0	49	7.7	18	5.6	7.9	23	19	192	39	351	6.5
14	4.8	13	7.9	9.7	41	7.8	14	15	30	13	132	26
15	4.7	8.2	7.8	57	29	7.8	113	15	57	10	77	21
16	4.4	7.0	7.7	13	17	7.5	87	371	30	52	29	51
17	4.9	119	7.5	11	7.7	7.5	21	244	26	77	18	29
18	5.0	18	7.2	10	6.6	46	16	44	13	14	12	12
19	5.0	9.8	7.3	11	5.9	13	17	24	12	11	53	368
20	4.8	498	7.6	13	5.7	12	13	19	12	71	14	345
21	91	71	18	12	201	59	13	17	23	18	21	160
22	153	25	8.6	11	66	11	11	15	12	11	16	35
23	13	14	32	8.4	21	9.4	11	148	23	10	14	31
24	8.8	11	44	8.1	14	197	10	101	30	10	11	16
25	6.7	9.4	14	7.8	11	52	10	37	12	10	8.9	12
26	5.7	8.5	8.2	13	13	17	9.9	20	16	10	8.2	121
27	5.2	24	7.5	14	13	13	9.8	32	21	11	7.6	20
28	5.5	221	34	7.4	9.7	12	9.6	15	12	16	7.6	13
29	5.0	28	12	7.7	---	11	20	13	9.8	9.3	19	11
30	4.7	15	7.8	51	---	74	48	13	8.8	8.5	13	10
31	4.5	---	7.3	10	---	105	---	13	---	9.3	8.2	---
MEAN	15.8	49.8	11.5	15.8	19.9	25.9	26.1	70.3	37.1	36.0	41.2	45.6
MAX	153	498	44	65	201	197	113	371	195	418	351	368
MIN	4.2	5.5	7.1	6.8	5.6	7.5	9.6	13	8.8	7.9	6.3	6.1

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

MEAN	19.9	24.9	23.1	23.2	26.9	31.9	30.1	27.4	22.9	27.3	28.2	26.0
MAX	60.1	90.6	85.1	86.3	55.1	75.5	97.0	83.8	57.4	83.1	195	102
(WY)	1928	1973	1984	1979	1971	1953	1983	1968	1972	1922	1971	1966
MIN	1.58	5.05	6.25	3.71	6.56	6.03	10.3	5.97	3.94	3.24	.07	1.99
(WY)	1922	1923	1981	1925	1934	1981	1963	1923	1923	1923	1923	1923

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	32.9	26.0	Unadjusted
HIGHEST ANNUAL MEAN		48.3	1971
LOWEST ANNUAL MEAN		10.2	1923
HIGHEST DAILY MEAN	498	1900	Aug 28 1971
LOWEST DAILY MEAN	4.2	.00	Jul 14 1922
INSTANTANEOUS PEAK FLOW	2560	4110	Aug 28 1971
INSTANTANEOUS PEAK STAGE	20.08	18.7a	Aug 28 1971
INSTANTANEOUS LOW FLOW	3.6	.00	Many days
10 PERCENTILE	56	51	
50 PERCENTILE	9.5	12	
95 PERCENTILE	5.3	3.9	

a From floodmark, site and datum then in use, from rating curve extended above 1,100 ft³/s on basis of contracted opening measurement of peak flow.

01393450 ELIZABETH RIVER AT URSINO LAKE, AT ELIZABETH, NJ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--February 1979 to current year.

COOPERATION.--Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988 18...	1000	5.0	719	7.9	13.5	8.0	77	1.8	1700	800
FEB 1989 08...	1200	6.1	2020	8.2	4.0	12.5	96	4.8	>2400	70
APR 06...	1230	50	300	7.9	12.0	9.7	91	3.0	2600	13000
JUN 08...	1130	18	255	7.7	--	--	--	10	54000	28000
JUL 20...	1130	90	440	7.8	21.0	6.5	74	--	160000	160000
AUG 24...	1100	10	770	7.9	24.5	8.3	100	2.0	--	--

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988 18...	240	72	14	46	2.6	151	61	97	0.1
FEB 1989 08...	270	87	14	340	3.5	131	58	600	0.1
APR 06...	71	23	3.4	29	1.4	--	16	20	--
JUN 08...	88	28	4.4	17	1.9	57	24	25	0.1
JUL 20...	160	52	8.4	36	2.6	103	34	69	0.1
AUG 24...	200	65	10	71	2.9	129	46	130	0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988 18...	14	397	0.045	1.40	<0.05	0.35	1.7	0.07	--
FEB 1989 08...	14	1200	0.071	1.82	0.44	0.95	2.8	0.37	4.2
APR 06...	5.7	--	0.026	1.06	0.05	0.53	1.6	0.11	5.2
JUN 08...	7.9	142	0.067	0.90	0.21	0.88	1.8	0.13	6.7
JUL 20...	11	275	0.100	1.60	0.18	1.3	3.0	0.24	11
AUG 24...	15	417	0.106	1.80	0.08	0.75	2.6	0.13	7.3

ELIZABETH RIVER BASIN

01393450 ELIZABETH RIVER AT URSINO LAKE, AT ELIZABETH, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SULFIDE TOTAL (MG/L AS S)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE)	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)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1988 18...	1000	<0.5	<10	1	<10	100	1	8	13

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	PHENOLS TOTAL (UG/L)
OCT 1988 18...	320	<5	60	<0.10	5	<1	30	4

RAHWAY RIVER BASIN

135

01393950 WEST BRANCH RAHWAY RIVER AT WEST ORANGE, NJ

LOCATION.--Lat 40°47'01", long 74°16'27", Essex County, Hydrologic Unit 02030104, at bridge on Mountain Avenue, 300 ft downstream of Turtle Brook, and 400 ft southeast of intersection with Pleasant Valley Way in West Orange.

DRAINAGE AREA.--2.52 mi².

WATER-QUALITY RECORDS

PERIOD OF RECORD.--July 1982 to current year.

COOPERATION.--Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988 18...	1200	0.8E	767	7.9	13.5	8.1	78	1.0	700	310
JAN 1989 30...	1200	1.2E	974	7.5	5.0	11.3	91	11	9200	2200
APR 04...	1200	1.1E	890	7.9	10.0	12.2	111	6.3	490	170
JUN 05...	1230	1.0E	750	7.7	19.5	11.5	128	3.9	700	<200
JUL 13...	1130	1.2E	560	7.7	18.0	7.7	83	--	3300	18000
AUG 23...	1130	1.0E	700	7.8	25.0	10.8	134	1.5	130	350

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988 18...	240	57	24	44	1.7	76	31	150	<0.1
JAN 1989 30...	130	32	12	140	1.5	33	28	290	0.1
APR 04...	170	42	16	100	1.5	49	35	220	0.1
JUN 05...	280	72	25	56	1.5	85	31	190	0.1
JUL 13...	210	52	20	55	1.5	71	27	170	0.1
AUG 23...	210	50	20	52	1.7	79	30	160	0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOROUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988 18...	11	364	0.011	1.20	<0.05	1.1	2.3	0.07	5.0
JAN 1989 30...	7.2	531	0.039	0.89	0.14	0.75	1.6	0.18	6.5
APR 04...	13	457	0.021	1.53	0.06	0.51	2.0	0.06	5.0
JUN 05...	22	449	0.022	1.59	0.06	0.44	2.0	0.06	3.1
JUL 13...	17	385	0.035	1.37	0.08	0.46	1.8	0.09	4.7
AUG 23...	17	378	0.019	1.08	<0.05	0.45	1.5	0.07	3.2

RAHWAY RIVER BASIN

01393950 WEST BRANCH RAHWAY RIVER AT WEST ORANGE, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SULFIDE TOTAL (MG/L AS S)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE)	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)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1988 18...	1200	<0.5	<10	1	<10	150	<1	2	8
JUN 1989 05...	1230	<0.5	10	<1	<10	110	<1	3	5

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	PHENOLS TOTAL (UG/L)
OCT 1988 18...	410	6	60	0.20	3	<1	20	11
JUN 1989 05...	360	6	80	0.10	2	<1	30	1

01394500 RAHWAY RIVER NEAR SPRINGFIELD, NJ

LOCATION.--Lat 40°41'11", Long 74°18'44", Union County, Hydrologic Unit 02030104, on left bank 50 ft downstream from bridge on eastbound U.S. Highway 22, 100 ft downstream from Pope Brook, and 1.5 mi south of Springfield.

DRAINAGE AREA.--25.5 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1938 to current year.

REVISED RECORDS.--WSP 1622: 1945. WRD-NJ 1973: 1938(M), 1968(M), 1971(M).

GAGE.--Water-stage recorder. Former concrete control is no longer effective. Datum of gage is 66.17 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Water for municipal supply diverted from river by city of Orange. The flow past this station is affected by diversions by pumpage from wells by Orange, South Orange, Short Hills Water Co., and Springfield station of Elizabethtown Water Co. Several measurements of water temperature, other than those published, were made during the year. Satellite telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.1	125	16	7.2	8.1	10	86	20	16	9.7	8.3	7.2
2	18	21	12	7.6	7.6	9.2	30	310	15	9.2	7.6	7.5
3	18	11	12	7.2	14	8.7	41	55	14	10	19	6.9
4	6.6	9.4	10	6.8	7.7	8.5	29	25	13	9.4	6.3	6.6
5	6.5	52	10	6.1	6.6	9.2	39	72	13	510	7.8	7.2
6	6.0	33	10	6.8	7.5	23	88	376	37	116	6.4	7.5
7	6.5	11	12	7.1	7.0	11	40	71	49	29	6.9	7.8
8	40	9.5	10	41	6.6	9.7	49	34	43	85	7.5	7.6
9	5.6	8.0	11	14	6.6	9.5	33	27	113	17	7.0	7.3
10	4.3	8.9	9.5	8.5	6.3	9.1	22	307	242	16	6.3	6.9
11	4.1	11	8.9	7.9	6.3	9.2	17	319	29	27	61	7.0
12	4.6	9.1	7.7	60	6.1	8.5	15	79	17	14	202	7.2
13	5.0	58	7.8	28	6.0	7.8	21	46	246	35	209	6.7
14	4.9	15	8.1	12	32	7.6	22	33	41	14	107	38
15	4.4	8.3	7.8	75	22	7.4	86	27	70	12	78	20
16	3.6	6.8	7.2	20	18	7.8	176	488	48	43	37	42
17	3.0	140	7.3	12	7.5	7.4	43	501	35	65	19	33
18	4.1	24	7.2	11	6.7	38	25	107	20	16	12	7.0
19	4.9	9.9	7.2	11	6.6	13	24	54	16	13	34	381
20	4.7	528	7.2	9.4	6.6	8.6	18	38	14	31	17	643
21	61	214	13	8.0	259	61	16	29	25	14	23	391
22	123	29	8.4	7.6	133	16	14	24	15	12	15	41
23	10	16	26	7.8	42	10	13	94	32	11	19	70
24	8.4	12	41	7.6	22	160	12	150	48	10	12	34
25	7.6	12	16	8.7	13	168	13	45	16	10	8.8	16
26	7.9	9.9	8.3	10	13	35	13	30	13	10	8.5	141
27	10	17	7.4	12	13	19	12	40	15	10	8.0	30
28	12	361	28	7.4	11	17	11	27	12	12	8.0	16
29	14	48	13	7.2	---	15	15	20	11	9.0	17	14
30	10	22	7.9	41	---	54	55	19	10	8.5	13	13
31	10	---	7.5	10	---	195	---	18	---	9.7	7.4	---
MEAN	14.1	61.3	11.8	15.7	25.1	31.4	35.9	112	42.9	38.6	32.2	67.4
MAX	123	528	41	75	259	195	176	501	246	510	209	643
MIN	3.0	6.8	7.2	6.1	6.0	7.4	11	18	10	8.5	6.3	6.6

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	1974	1973	1984	1979	1939	1953	1983	1989	1972	1975	1942	1975
MEAN	15.6	26.7	29.7	28.6	35.1	46.1	42.7	34.5	22.4	24.5	22.8	21.2
MAX	47.0	107	129	116	77.7	112	139	112	110	138	112	100
(WY)	1974	1973	1984	1979	1939	1953	1983	1989	1972	1975	1942	1975
MIN	2.17	2.73	4.02	4.26	7.01	8.08	7.37	6.31	4.14	2.23	2.10	2.97
(WY)	1964	1950	1940	1966	1954	1981	1963	1965	1965	1966	1964	1964

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	40.7	29.1
HIGHEST ANNUAL MEAN		55.9
LOWEST ANNUAL MEAN		10.0
HIGHEST DAILY MEAN	643	1620
LOWEST DAILY MEAN	3.0	.40
INSTANTANEOUS PEAK FLOW	1590	5430a
INSTANTANEOUS PEAK STAGE	6.68	9.76b
INSTANTANEOUS LOW FLOW	2.7	.10
10 PERCENTILE	83	59
50 PERCENTILE	14	9.0
95 PERCENTILE	6.2	2.3

a From rating curve extended above 1,600 ft³/s on basis of slope-area measurement of peak flow

b From floodmark

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1978 to current year.

COOPERATION.--Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988 12...	1030	4.9	548	7.6	11.0	7.0	64	1.8	490	170
FEB 1989 01...	1230	8.5	503	7.9	6.5	12.5	103	--	400	<200
APR 03...	1300	66	530	7.8	8.5	9.8	85	3.6	1700	330
JUN 07...	1130	34	380	7.7	17.5	--	--	8.1	9200	3500
JUL 18...	1145	15	420	7.7	19.5	7.0	77	2.4	7000	800
AUG 21...	1200	11	495	7.7	22.0	6.9	80	2.1	1700	200

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988 12...	210	63	12	30	2.1	129	39	64	0.1
FEB 1989 01...	150	44	8.8	38	1.7	93	31	73	0.1
APR 03...	130	39	8.5	51	1.7	70	31	98	0.1
JUN 07...	140	41	8.1	26	2.5	85	26	58	0.1
JUL 18...	140	41	8.1	30	1.9	82	26	62	0.1
AUG 21...	160	50	9.5	33	2.5	106	32	65	0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOROUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988 12...	15	303	0.018	1.91	0.08	0.36	2.3	0.06	2.8
FEB 1989 01...	12	264	0.017	1.37	<0.05	0.33	1.7	0.06	3.3
APR 03...	9.7	281	0.019	1.37	0.11	0.57	1.9	0.07	4.3
JUN 07...	12	225	0.065	1.53	0.31	0.93	2.5	0.14	6.7
JUL 18...	14	232	0.031	1.21	0.10	0.45	1.7	0.08	4.2
AUG 21...	16	272	0.027	1.62	0.08	0.63	2.3	0.08	4.2

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

01395000 RAHWAY RIVER AT RAHWAY, NJ

LOCATION.--Lat 40°37'05", long 74°17'00", Union County, Hydrologic Unit 02030104, on left bank 100 ft upstream from St. Georges Avenue bridge in Rahway and 0.9 mi upstream from Robinsons Branch.

DRAINAGE AREA.--40.9 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1908 to April 1915 (gage heights and discharge measurements only), October 1921 to current year.

REVISED RECORDS.--WSP 781: Drainage area. WSP 1552: 1922-23(M), 1924, 1930-31(M), 1937. WDR NJ-79-1: 1978.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 8.77 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 25, 1934, nonrecording gage at site 40 ft downstream from Church Street and 1,500 ft downstream from present site at datum 2.77 ft lower.

REMARKS.--No estimated daily discharges. Records good. Water for municipal supply diverted from river by Rahway and Orange. The flow past this station is affected by diversions by pumpage from wells by Orange, South Orange, Short Hills Water Co., Springfield station of Elizabethtown Water Co, and by storage in the Lenape Park flood control reservoir (since 1980). Several measurements of water temperature, other than those published, were made during the year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.8	151	28	10	13	17	175	28	25	14	12	10
2	7.1	102	21	9.6	11	16	52	447	24	13	12	11
3	47	18	19	10	17	15	61	172	23	11	37	8.9
4	9.9	8.5	16	9.4	18	15	52	45	24	12	13	8.1
5	7.2	21	15	7.4	9.8	15	58	73	19	557	11	8.4
6	5.9	76	17	8.9	9.9	38	148	603	72	668	9.2	9.0
7	6.0	17	17	10	12	26	75	185	62	57	13	9.8
8	64	11	16	41	9.5	19	79	55	98	139	14	9.4
9	16	8.7	13	40	8.8	18	51	42	145	38	9.3	9.0
10	20	7.9	16	15	8.8	18	39	394	516	24	8.8	7.3
11	42	9.0	12	13	9.6	19	29	743	61	40	101	7.3
12	31	8.0	9.9	67	8.1	18	26	149	31	20	333	7.2
13	30	57	10	76	7.9	15	27	74	378	58	216	6.8
14	3.7	49	10	23	51	15	41	54	90	32	356	29
15	5.2	14	11	111	37	15	88	45	115	19	338	73
16	5.2	12	9.9	42	46	14	344	649	83	44	83	43
17	3.6	215	9.2	22	15	13	74	1090	62	143	33	80
18	4.1	65	8.1	18	11	35	50	326	35	31	26	13
19	4.5	20	8.3	17	9.8	57	41	93	28	21	35	469
20	5.7	660	8.6	15	10	16	31	64	24	69	45	1470
21	34	767	17	13	322	94	27	51	40	39	31	1070
22	260	87	23	10	368	38	25	43	27	21	56	158
23	28	16	26	10	73	23	23	118	36	17	20	62
24	13	23	59	11	39	144	20	317	87	15	33	87
25	7.0	20	52	10	25	402	21	79	29	15	14	36
26	7.7	16	16	12	23	68	20	49	22	14	12	216
27	6.8	18	12	23	27	41	20	58	25	14	11	64
28	8.3	616	20	13	22	30	18	49	18	19	10	31
29	8.6	131	45	9.1	---	28	19	33	18	13	13	25
30	5.8	40	13	59	---	48	101	28	15	10	34	23
31	4.3	---	10	31	---	308	---	28	---	11	11	---
MEAN	22.8	109	18.3	24.7	43.6	52.8	61.2	199	74.4	70.9	62.9	135
MAX	260	767	59	111	368	402	344	1090	516	668	356	1470
MIN	3.6	7.9	8.1	7.4	7.9	13	18	28	15	10	8.8	6.8

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	25.2	42.8	46.2	48.6	59.7	77.4	68.8	52.5	35.0	40.8	39.2	36.3
MAX	130	221	255	211	156	190	246	199	173	268	242	175	175
(WY)	1928	1973	1984	1979	1925	1983	1983	1989	1972	1975	1971	1975	1975
MIN	1.48	3.05	3.27	1.41	12.5	12.6	7.80	6.20	3.32	.33	.43	2.26	2.26
(WY)	1964	1966	1981	1981	1954	1981	1963	1965	1965	1966	1964	1964	1964

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	72.9	47.6	Unadjusted
HIGHEST ANNUAL MEAN		105	1973
LOWEST ANNUAL MEAN		15.0	1965
HIGHEST DAILY MEAN	1470	3450	Aug 28 1971
LOWEST DAILY MEAN	3.6	.00	Oct 9 1964
INSTANTANEOUS PEAK FLOW	2150	5420 ^a	Aug 2 1973
INSTANTANEOUS PEAK STAGE	5.63	7.88	Aug 2 1973
INSTANTANEOUS LOW FLOW	2.7	.00	Many days
10 PERCENTILE	151	100	
50 PERCENTILE	23	19	
95 PERCENTILE	7.3	1.0	

^a From rating curve extended above 3,000 ft³/s

01395000 RAHWAY RIVER AT RAHWAY, NJ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1923-24, 1952, 1962, 1967-70, and February 1979 to current year.

COOPERATION.--Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988 26...	1130	7.0	295	7.5	9.5	7.6	66	5.1	230	3500
JAN 1989 25...	1400	9.4	539	8.3	4.5	14.8	113	6.0	50	20
MAR 20...	1030	14	750	8.3	9.5	--	--	5.1	1300	140
MAY 22...	1330	41	465	8.0	20.0	9.7	108	3.0	230	60
JUL 13...	1400	77	400	7.8	21.0	8.2	93	--	1300	4900
AUG 10...	1315	8.8	--	8.0	21.0	8.4	--	3.0	<200	500

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988 26...	110	32	6.2	14	2.2	71	29	26	0.1
JAN 1989 25...	190	56	11	36	1.9	119	42	72	0.1
MAR 20...	170	52	9.6	84	2.5	100	42	140	0.1
MAY 22...	140	42	8.6	36	2.1	88	33	69	0.1
JUL 13...	150	47	8.6	24	2.2	99	33	50	0.1
AUG 10...	180	57	10	25	2.0	121	41	51	0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CON-STI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOROUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988 26...	8.4	160	0.009	0.65	0.05	0.59	1.2	0.11	5.3
JAN 1989 25...	12	302	0.016	1.33	0.05	0.31	1.6	0.08	2.8
MAR 20...	6.0	396	0.029	1.11	0.08	0.85	2.0	0.10	5.9
MAY 22...	13	257	0.031	1.18	0.11	0.68	1.9	0.12	5.0
JUL 13...	13	237	0.040	1.22	0.09	0.71	1.9	0.14	5.3
AUG 10...	13	272	0.047	0.92	0.11	0.40	--	0.10	4.1

RAHWAY RIVER BASIN

01395000 RAHWAY RIVER AT RAHWAY, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SULFIDE TOTAL (MG/L AS S)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE)	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)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1988 26...	1130	<0.5	10	2	<10	60	<1	3	6
MAY 1989 22...	1330	--	20	1	<10	90	<1	1	7

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	PHENOLS TOTAL (UG/L)
OCT 1988 26...	580	<5	280	0.10	1	--	20	1
MAY 1989 22...	550	7	180	<0.10	3	<1	<10	3

01396000 ROBINSONS BRANCH AT RAHWAY, NJ

LOCATION.--Lat 40°36'20", Long 74°17'40", Union County, Hydrologic Unit 02030104, on right bank of Milton Lake, 2,000 ft upstream from Maple Avenue in Rahway, 3,200 ft downstream from Middlesex Reservoir Dam, and 1.6 mi upstream from mouth.

DRAINAGE AREA.--21.6 mi².

PERIOD OF RECORD.--September 1939 to current year. September 1939 to September 1978, published as "Robinsons Branch Rahway River at Rahway." October 1978 to September 1985, published as "Robinsons Branch Rahway River at Maple Avenue, at Rahway" (station 01396001).

REVISED RECORDS.--WDR NJ-75-1: 1973(P). WDR NJ-87-1: 1986(M).

GAGE.--Water-stage recorder. Datum of gage is 19.99 ft above National Geodetic Vertical Datum of 1929 (levels from New Jersey Geological Survey bench mark). From Sept. 26, 1978 to Sept. 30, 1985, water-stage recorder 2,000 ft downstream at Maple Avenue at datum 8.69 ft lower.

REMARKS.--No estimated daily discharges. Records fair above 10 ft³/s and poor below. Water diverted for municipal supply by Middlesex Water Co., from Middlesex Reservoir, capacity, 89,000,000 gal, 1.0 mi above station. No diversion this year. Several measurements of water temperature were made during the year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.9	101	17	6.7	14	6.2	142	18	13	4.8	5.7	4.1
2	4.5	63	14	5.9	7.5	5.1	41	214	11	5.3	5.3	4.2
3	15	11	14	5.9	16	5.0	41	89	8.4	4.8	18	3.1
4	3.2	7.1	12	6.1	13	4.8	37	23	16	4.9	6.1	2.5
5	1.9	16	10	3.0	6.4	6.0	46	42	9.3	409	4.7	2.5
6	1.7	23	10	3.1	6.1	22	117	333	54	244	3.6	2.6
7	1.7	8.5	9.7	3.2	7.2	16	59	131	53	70	11	3.1
8	29	5.6	9.5	20	5.5	7.3	58	36	58	70	9.7	3.0
9	6.6	5.1	9.0	33	4.3	9.5	37	24	117	23	3.6	3.1
10	2.0	5.0	8.9	13	3.6	11	26	307	282	11	2.5	4.2
11	1.9	6.6	9.6	8.1	3.2	14	20	403	71	19	46	4.2
12	1.5	4.6	7.2	40	3.6	16	17	147	19	7.9	135	3.9
13	1.7	41	6.6	58	3.2	11	18	45	147	36	92	3.9
14	1.4	34	6.7	22	41	9.2	26	29	60	24	95	31
15	1.5	12	7.5	76	49	8.2	69	25	84	8.4	158	42
16	1.5	11	7.6	39	65	7.2	230	385	80	29	43	24
17	1.6	137	7.3	21	21	5.8	62	504	49	106	12	38
18	1.9	57	7.0	12	8.1	23	25	193	25	30	6.3	8.2
19	1.8	17	6.8	6.2	6.4	40	19	49	16	14	15	605
20	2.1	501	7.4	4.9	5.9	14	12	29	12	64	18	1030
21	43	380	15	3.4	217	58	10	24	17	87	16	707
22	159	94	17	2.5	216	29	9.3	20	13	24	26	249
23	18	13	21	2.5	77	14	7.1	75	50	14	19	78
24	5.8	8.5	39	2.6	23	106	6.6	164	55	9.5	40	31
25	4.8	7.2	35	2.9	10	202	6.5	50	20	8.6	12	30
26	4.3	6.6	15	3.9	11	51	6.6	27	11	8.2	5.6	69
27	4.1	7.7	9.3	11	15	26	6.9	32	18	9.5	3.6	46
28	4.3	376	15	5.5	11	22	5.9	26	10	22	3.2	32
29	4.7	124	18	4.3	---	18	7.5	17	8.3	8.8	8.0	14
30	5.0	26	9.6	39	---	38	47	15	5.6	5.3	38	1.0
31	4.4	---	8.1	36	---	273	---	15	---	5.9	11	---
MEAN	11.0	70.3	12.6	16.2	31.1	34.8	40.5	113	46.4	44.8	28.2	103
MAX	159	501	39	76	217	273	230	504	282	409	158	1030
MIN	1.4	4.6	6.6	2.5	3.2	4.8	5.9	15	5.6	4.8	2.5	1.0

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	MAX	(WY)	MIN	(WY)
1988	11.9	60.3	1959	.22	1954
1989	26.0	98.8	1973	.48	1965
1990	28.6	142	1984	1.03	1966
1991	29.5	118	1979	.87	1966
1992	36.8	77.0	1973	7.24	1954
1993	44.8	108	1953	8.49	1981
1994	38.2	129	1983	.45	1963
1995	30.7	113	1989	.27	1963
1996	16.5	76.8	1972	.15	1957
1997	17.9	143	1975	.00	1954
1998	16.7	90.9	1942	.13	1953
1999	16.6	118	1975	.02	1955

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	46.1	26.1	Unadjusted
HIGHEST ANNUAL MEAN		52.2	1984
LOWEST ANNUAL MEAN		5.79	1965
HIGHEST DAILY MEAN	1030	1240	Jul 15 1975
LOWEST DAILY MEAN	1.0	.00	Jan 9 1942
INSTANTANEOUS PEAK FLOW	2980	3110a	Jul 15 1975
INSTANTANEOUS PEAK STAGE	5.83	6.02	Aug 15 1969
INSTANTANEOUS LOW FLOW	1.0	0	Many days
10 PERCENTILE	99	59	
50 PERCENTILE	14	7.2	
95 PERCENTILE	2.2	.16	

a From rating curve extended above 750 ft³/s on basis of flow-over-dam computation.

RARITAN RIVER BASIN

01396280 SOUTH BRANCH RARITAN RIVER AT MIDDLE VALLEY, NJ

LOCATION.--Lat 40°45'40", Long 74°49'18", Morris County, Hydrologic Unit 02030105, at bridge on Middle Valley Road in Middle Valley, 6.9 mi downstream from Drakes Brook.

DRAINAGE AREA.--47.6 mi².

PERIOD OF RECORD.--Water years 1964-65, 1967, 1976 to current year.

COOPERATION.--Field data and samples for laboratory analyses provided by New Jersey Department of Environmental Protection, Division of Water Resources. Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988 13...	1120	29E	282	7.2	6.0	12.5	101	E1.1	230	130
FEB 1989 09...	1200	44E	244	6.6	--	--	--	E2.0	50	7
APR 04...	1015	119E	183	6.8	8.0	12.7	110	E2.4	80	11
JUN 07...	1150	106E	263	6.8	12.0	9.6	91	3.7	2800	>2400
JUL 26...	1030	54E	318	7.7	17.0	11.1	116	3.0	2400	1600
AUG 28...	1330	37E	282	7.8	16.5	9.3	96	<1.2	490	1600

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988 13...	110	23	13	13	1.8	93	13	20	<0.1
FEB 1989 09...	98	21	11	16	1.5	72	15	29	0.1
APR 04...	65	15	6.8	14	1.1	43	16	23	0.1
JUN 07...	80	18	8.6	13	1.3	57	12	23	0.1
JUL 26...	94	21	10	13	3.0	73	11	23	<0.1
AUG 28...	110	24	12	13	1.5	83	11	21	0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOROUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988 13...	12	152	0.025	2.16	<0.05	0.29	2.5	--	2.3
FEB 1989 09...	11	148	0.018	2.06	<0.05	0.30	2.4	0.23	2.5
APR 04...	11	113	0.016	1.35	0.10	0.37	1.7	0.15	3.1
JUN 07...	13	123	0.021	1.91	0.05	0.59	2.5	--	4.8
JUL 26...	12	137	0.009	1.54	0.08	0.70	2.2	0.50	4.1
AUG 28...	14	146	0.017	2.15	<0.05	0.23	2.4	0.18	2.5

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

01396500 SOUTH BRANCH RARITAN RIVER NEAR HIGH BRIDGE, NJ

LOCATION.--Lat 40°40'40", long 74°52'46", Hunterdon County, Hydrologic Unit 02030105, on left bank 1.0 mi northeast of High Bridge, and 4.4 mi upstream from Spruce Run.

DRAINAGE AREA.--65.3 mi².

PERIOD OF RECORD.--October 1918 to current year. Monthly discharge only for some periods, published in WSP 1302.

REVISED RECORDS.--WSP 601: 1924. WSP 781: Drainage area. WSP 1552: 1919(M), 1920(M), 1921, 1923, 1924(M), 1927-28(M), 1934(M), 1941(M).

GAGE.--Water-stage recorder and crest-stage gage. Concrete control since Sept. 28, 1930. Datum of gage is 282.10 ft above National Geodetic Vertical Datum of 1929 (levels from New Jersey Geological Survey bench mark). Prior to Sept. 30, 1921, reference point at same site and datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. Occasional regulation from unknown source. Several measurements of water temperature were made during the year. New Jersey Water-Supply Authority gage-height and USGS satellite telemeters at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Outstanding floods occurred on Feb. 6, 1896, in February 1902, and October 1903. At High Bridge, according to reports of the New Jersey State Geologist, the discharges for these floods respectively were 7,560 ft³/s, 3,840 ft³/s, and 2,670 ft³/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	55	127	e73	84	90	272	94	147	133	70	49
2	46	78	114	e72	80	86	172	398	136	125	67	48
3	65	58	106	e70	81	85	170	215	126	118	72	47
4	51	52	99	e66	78	84	183	141	122	114	67	44
5	47	85	94	e59	71	85	231	158	117	205	66	43
6	45	177	91	e58	70	104	276	902	122	189	69	43
7	44	86	91	e67	69	92	230	389	190	137	67	43
8	44	67	87	e78	65	82	181	264	250	205	79	42
9	45	62	83	e110	63	84	168	225	171	124	63	43
10	44	59	78	80	61	84	155	557	345	110	61	42
11	43	56	77	74	63	87	140	596	158	107	64	42
12	42	53	e78	95	60	98	133	371	125	97	123	41
13	41	96	e79	150	58	90	133	327	250	106	100	41
14	41	131	e80	88	74	87	136	280	164	102	80	41
15	41	79	e78	186	85	104	151	272	188	91	72	59
16	42	67	e76	143	106	104	316	599	328	103	76	56
17	41	200	e77	100	75	88	177	861	244	140	67	79
18	40	141	e81	88	68	105	148	459	160	99	62	56
19	40	91	e88	84	67	157	139	355	136	91	61	128
20	39	627	e80	83	65	102	127	307	125	103	64	1760
21	47	689	e70	73	347	164	123	269	133	107	61	711
22	150	218	e72	69	342	155	118	236	154	93	68	270
23	76	175	73	73	177	111	111	239	283	89	63	251
24	66	143	108	71	127	194	107	481	804	83	61	199
25	67	123	171	71	103	363	104	306	307	79	57	148
26	54	112	97	72	103	182	102	225	217	78	54	256
27	50	109	82	94	100	152	99	221	183	76	52	176
28	49	335	88	80	94	142	95	202	184	80	52	133
29	48	197	119	75	---	134	93	171	166	70	55	122
30	47	151	e82	83	---	145	96	160	145	67	57	114
31	46	---	e76	90	---	298	---	157	---	69	51	---
MEAN	51.1	152	90.4	86.3	101	127	156	337	206	109	67.1	171
MAX	150	689	171	186	347	363	316	902	804	205	123	1760
MIN	39	52	70	58	58	82	93	94	117	67	51	41
IN.	.90	2.60	1.60	1.52	1.62	2.24	2.67	5.95	3.52	1.93	1.19	2.92

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	71.6	109	131	135	154	202	192	143	96.7	86.1	77.8	72.6
MAX	257	335	382	480	301	466	528	337	401	295	285	195	195
(WY)	1928	1928	1974	1979	1925	1936	1983	1989	1972	1975	1942	1979	1979
MIN	21.8	26.9	36.5	31.8	54.0	79.5	70.7	50.5	27.6	20.7	20.4	20.8	20.8
(WY)	1964	1966	1966	1981	1934	1965	1965	1965	1965	1965	1965	1965	1964

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	138	123
HIGHEST ANNUAL MEAN	213	1928
LOWEST ANNUAL MEAN	46.2	1965
HIGHEST DAILY MEAN	1760	3340
LOWEST DAILY MEAN	39	13
INSTANTANEOUS PEAK FLOW	2750	6910
INSTANTANEOUS PEAK STAGE	10.00	12.23a
INSTANTANEOUS LOW FLOW	39	6.6
ANNUAL RUNOFF (INCHES)	28.65	25.47
10 PERCENTILE	260	238
50 PERCENTILE	94	86
95 PERCENTILE	44	30

a Ice jam
e Estimated

RARITAN RIVER BASIN

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01396535 SOUTH BRANCH RARITAN RIVER AT ARCH STREET AT HIGH BRIDGE, NJ

LOCATION.--Lat 40°39'49", long 74°53'52", Hunterdon County, Hydrologic Unit 02030105, at bridge on Arch Street in High Bridge, 0.9 mi northeast of Mariannes Corner, 1.0 mi downstream from Lake Solitude dam, and 4.3 mi northeast of Norton.

DRAINAGE AREA.--68.8 mi².

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

COOPERATION.--Field data and samples for laboratory analyses provided by New Jersey Department of Environmental Protection, Division of Water Resources. Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988 13...	1250	39E	274	7.0	7.0	12.2	100	<0.4	20	49
FEB 1989 09...	1245	63E	268	7.7	--	--	--	E1.5	230	2
APR 04...	1158	160E	185	7.6	10.0	13.5	122	E2.2	940	79
JUN 07...	1030	160E	260	7.7	13.0	9.6	92	2.7	2800	>2400
JUL 26...	1230	80E	305	8.2	18.5	8.8	94	2.7	790	1600
AUG 28...	1100	51E	273	8.3	18.5	8.8	94	E1.3	1300	920

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988 13...	120	24	14	12	1.8	94	14	18	0.1
FEB 1989 09...	91	20	10	16	1.4	71	16	27	0.1
APR 04...	65	15	6.8	12	1.1	44	17	20	0.1
JUN 07...	81	18	8.7	11	1.3	59	13	20	0.1
JUL 26...	100	22	11	11	1.6	76	12	19	0.1
AUG 28...	110	24	12	11	1.5	88	12	18	0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOROUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988 13...	11	151	0.013	1.59	<0.05	0.27	1.9	--	2.5
FEB 1989 09...	10	143	0.014	3.00	0.06	0.20	3.2	0.14	2.0
APR 04...	11	109	0.013	1.37	0.08	0.34	1.7	0.15	2.4
JUN 07...	13	120	0.015	1.53	0.17	0.63	2.2	--	3.9
JUL 26...	11	133	0.016	1.46	<0.05	0.77	2.2	0.44	3.2
AUG 28...	12	143	--	1.74	<0.05	0.23	2.0	0.11	2.3

RARITAN RIVER BASIN

01396588 SPRUCE RUN NEAR GLEN GARDNER, NJ

LOCATION---Lat 40°40'41", long 74°55'06", Hunterdon County, Hydrologic Unit 02030105, at site 800 ft downstream of Rocky Run, 0.3 mi above Van Syckel Road bridge, 1.5 mi northwest of High Bridge, and 1.6 mi southeast of Glen Gardner.

DRAINAGE AREA---15.5 mi².

PERIOD OF RECORD---February 1979 to current year.

COOPERATION---Field data and samples for laboratory analyses provided by the New Jersey Department of Environmental Protection, Division of Water Resources. Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988 11...	1100	5.4E	170	7.7	10.0	12.8	117	<0.6	140	170
FEB 1989 23...	1030	56 E	170	7.1	2.5	13.2	97	<1.1	130	49
MAR 20...	0930	23 E	165	6.7	3.5	15.8	119	E2.0	20	33
JUN 06...	1045	30 E	182	7.0	12.5	12.1	116	3.2	5400	>2400
JUL 25...	1200	15 E	205	7.9	20.5	9.7	108	E1.4	1300	350
AUG 02...	1120	11 E	220	7.1	13.0	9.9	95	3.0	260	920

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988 11...	63	15	6.3	9.1	1.4	41	20	13	0.1
FEB 1989 23...	46	11	4.4	9.4	1.3	20	18	16	0.1
MAR 20...	47	11	4.8	8.8	1.0	24	19	14	0.1
JUN 06...	55	13	5.4	8.8	1.5	33	17	13	0.1
JUL 25...	58	14	5.6	10	1.4	36	18	15	0.2
AUG 02...	62	15	6.0	9.1	1.4	40	17	13	0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988 11...	17	106	0.003	1.12	<0.05	0.22	1.3	--	2.2
FEB 1989 23...	14	86	0.010	1.16	0.08	0.25	1.4	0.10	2.8
MAR 20...	15	88	0.005	1.20	0.08	0.20	1.4	0.07	1.7
JUN 06...	16	95	0.008	1.49	0.08	0.67	2.2	--	3.8
JUL 25...	18	104	0.006	1.31	0.15	0.17	1.5	0.07	1.7
AUG 02...	18	104	0.026	1.75	0.06	0.51	2.3	0.43	2.8

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

RARITAN RIVER BASIN

01396660 MULHOCKAWAY CREEK AT VAN SYCKEL, NJ

LOCATION.--Lat 40°38'51", long 74°58'09", Hunterdon County, Hydrologic Unit 02030105, on left bank downstream side of bridge on Jutland Road, 0.2 mi south of Van Syckel, 0.8 mi north of Perryville, and 0.3 mi upstream from Spruce Run Reservoir.

DRAINAGE AREA.--11.8 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Occasional low-flow measurements, water years 1973-77. July 1977 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 280.25 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except for estimated daily discharges, which are poor. Several measurements of water temperature, other than those published, were made during the year.

REVISIONS.--Some of the peak discharges and annual maximums(*) reported from water years 1978 through 1982 have been revised as shown in the following table. These figures supercede those published in the 1978 through 1982 reports.

Water year	Date	Discharge (ft ³ /s)	Gage height (ft)	Water year	Date	Discharge (ft ³ /s)	Gage height (ft)
1978	Dec. 1, 1977	527	3.39	1979	Sept. 6, 1979	1,240	4.80
1978	Jan. 9, 1978	670	3.73	1980	Mar. 21, 1980	*842	*4.09
1978	Jan. 26, 1978	712	3.82	1981	Oct. 25, 1980	*986	*4.38
1978	Aug. 7, 1978	*837	*4.08	1981	May 12, 1981	837	4.08
1979	Jan. 8, 1979	516	3.36	1982	Jan. 4, 1982	*1,400	*5.05
1979	Jan. 20, 1979	910	4.23	1982	Apr. 3, 1982	1,240	4.80
1979	Jan. 24, 1979	*2,500	*6.48	1982	Aug. 9, 1982	925	4.26
1979	Feb. 26, 1979	1,020	4.44				

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.2	9.9	15	7.8	11	12	37	16	21	27	6.6	e4.9
2	8.0	8.1	13	8.2	9.8	11	25	91	19	24	5.9	e4.8
3	7.2	6.1	12	8.1	12	10	28	26	17	21	7.7	e4.3
4	4.8	5.6	11	6.4	9.4	10	42	19	17	40	5.4	e4.0
5	4.4	22	10	6.0	8.6	12	39	43	16	97	5.4	e4.1
6	4.2	18	9.6	6.6	8.9	16	60	150	21	37	4.7	e4.2
7	4.2	8.4	9.5	7.2	8.9	12	37	54	66	28	6.6	e4.3
8	4.2	6.8	8.9	17	7.9	11	29	34	35	61	5.1	e4.1
9	4.3	6.3	8.5	14	6.7	11	29	30	54	22	4.3	e4.2
10	4.4	5.9	8.2	9.5	6.7	13	25	189	56	19	4.1	e4.2
11	4.3	5.8	7.3	8.6	7.1	15	23	80	23	16	5.5	e4.1
12	4.4	5.6	6.2	20	7.2	16	22	54	18	15	46	e3.9
13	4.4	22	6.4	19	6.9	13	21	44	78	31	20	e3.9
14	4.4	12	7.5	11	12	13	20	48	47	18	8.4	e3.9
15	4.5	7.8	7.9	43	16	14	39	47	62	13	7.1	e7.0
16	4.4	6.9	8.0	20	17	12	50	160	122	29	6.7	e5.1
17	4.4	43	8.0	14	9.8	10	26	124	58	21	5.1	e9.4
18	4.6	15	8.0	12	8.6	21	23	56	36	14	4.4	e5.3
19	4.6	9.7	7.9	12	8.3	18	21	46	29	12	7.1	e26
20	4.4	204	7.9	11	8.4	13	19	41	31	21	6.2	e336
21	19	52	8.1	8.3	80	38	18	37	60	17	e6.6	e51
22	43	23	8.5	7.9	45	20	17	33	73	13	e7.9	e23
23	8.5	17	8.6	8.4	24	15	16	55	285	11	e6.7	e24
24	9.3	14	9.7	8.7	16	68	16	73	282	8.7	e8.5	e18
25	6.8	12	13	8.6	12	46	15	39	78	8.3	e5.4	e14
26	6.0	11	11	11	13	24	15	31	56	7.8	e5.7	51
27	5.6	12	9.2	15	14	21	15	34	44	7.3	e5.2	19
28	5.6	69	13	9.9	12	19	13	27	56	10	e4.9	14
29	5.3	22	12	9.6	---	18	14	24	44	6.3	e5.8	13
30	5.2	17	8.9	16	---	42	15	23	30	6.2	e6.8	10
31	5.1	---	8.3	13	---	68	---	22	---	7.2	e4.8	---
MEAN	6.89	22.6	9.39	12.2	14.5	20.7	25.6	56.5	61.1	21.6	7.76	22.8
MAX	43	204	15	43	80	68	60	189	285	97	46	336
MIN	4.2	5.6	6.2	6.0	6.7	10	13	16	16	6.2	4.1	3.9
IN.	.67	2.14	.92	1.19	1.28	2.02	2.42	5.52	5.78	2.11	.76	2.16

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	9.90	17.1	20.5	23.4	25.8	29.5	39.0	30.9	19.3	14.2	8.97	10.2
MEAN	9.90	17.1	20.5	23.4	25.8	29.5	39.0	30.9	19.3	14.2	8.97	10.2
MAX	25.1	32.6	47.9	79.2	40.2	47.9	94.1	59.2	61.1	53.2	19.7	22.8
(WY)	1980	1986	1984	1979	1979	1978	1984	1984	1989	1984	1978	1989
MIN	4.55	6.34	5.61	5.01	11.1	10.2	6.88	15.7	9.01	5.80	2.84	2.85
(WY)	1983	1985	1981	1981	1980	1985	1985	1986	1987	1980	1980	1980

01396660 MULHOCKAWAY CREEK AT VAN SYCKEL, NJ--Continued

WATER-DISCHARGE RECORDS--Continued

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	23.4		20.7	
HIGHEST ANNUAL MEAN			35.2	1984
LOWEST ANNUAL MEAN			11.8	1985
HIGHEST DAILY MEAN	336	Sep 20	700	Apr 5 1984
LOWEST DAILY MEAN	3.9	Sep 12	1.5	Sep 12 1980
INSTANTANEOUS PEAK FLOW	3590	Sep 20	3590a	Sep 20 1989
INSTANTANEOUS PEAK STAGE	7.41	Sep 20	7.41	Sep 20 1989
INSTANTANEOUS LOW FLOW	3.7	Aug 10	1.1	Sep 23 1980
ANNUAL RUNOFF (INCHES)	26.93		23.87	
10 PERCENTILE	51		41	
50 PERCENTILE	13		13	
95 PERCENTILE	3.9		3.7	

a From rating curve extended above 200 ft³/s

e Estimated

01396660 MULHOCKAWAY CREEK AT VAN SYCKEL, NJ--Continued

WATER-QUALITY RECORDS

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

COOPERATION.--Field data and samples for laboratory analyses provided by the New Jersey Department of Environmental Protection, Division of Water Resources. Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988 11...	1330	4.4	212	8.2	11.0	11.1	103	<0.5	130	350
FEB 1989 22...	1100	54	210	7.3	3.0	12.0	89	E1.6	790	>2400
MAR 20...	1135	11	180	7.4	5.0	15.5	121	E1.8	50	11
JUN 06...	1240	24	200	7.5	13.0	10.7	103	E1.9	5400	>2400
JUL 25...	1330	8.0	195	7.9	20.5	9.7	108	<1.0	1300	540
AUG 02...	1315	6.2	225	7.6	14.5	9.1	90	E1.5	2400	>2400

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988 11...	88	22	8.1	8.2	1.7	72	16	12	0.1
FEB 1989 22...	52	14	4.2	13	1.8	28	23	19	0.1
MAR 20...	67	17	6.0	14	1.2	45	20	21	0.1
JUN 06...	61	16	5.1	7.3	1.4	43	17	13	0.1
JUL 25...	69	18	5.9	7.2	1.4	50	15	10	0.1
AUG 02...	70	18	6.0	7.0	1.4	53	16	5.6	0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOROUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988 11...	14	125	0.003	0.96	<0.05	0.16	1.1	--	2.0
FEB 1989 22...	10	102	0.008	1.07	<0.05	0.45	1.5	0.19	5.0
MAR 20...	13	119	0.006	0.97	0.15	0.52	1.5	0.11	1.8
JUN 06...	14	100	0.016	1.06	0.06	0.56	1.6	--	4.2
JUL 25...	16	104	0.006	1.07	0.05	0.13	1.2	0.05	1.4
AUG 02...	15	101	0.036	1.24	<0.05	0.49	1.7	0.54	2.3

01396660 MULHOCKAWAY CREEK AT VAN SYCKEL, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SULFIDE TOTAL (MG/L AS S)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE)	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)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
JUN 1989 06...	1240	<0.5	30	<1	<10	10	2	2	9

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	PHENOLS TOTAL (UG/L)
JUN 1989 06...	490	3	60	0.10	2	<1	90	<1

RARITAN RIVER BASIN

01396800 SPRUCE RUN AT CLINTON, NJ

LOCATION.--Lat 40°38'21", Long 74°54'58", Hunterdon County, Hydrologic Unit 02030105, 1,800 ft downstream from dam at Spruce Run Reservoir, 0.2 mi north of Clinton, 0.3 mi upstream from mouth, and 2.2 mi southwest of High Bridge.

DRAINAGE AREA.--41.3 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1959 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Concrete control since Mar. 15, 1964. Datum of gage is 193.5 ft above National Geodetic Vertical Datum of 1929. May to Nov. 24, 1959, nonrecording gage; Nov. 25, 1959 to July 23, 1961, water-stage recorder at site 1,800 ft upstream and at datum 1.41 ft lower; July 24, 1961 to Mar. 14, 1964, water-stage recorder at site 1,500 ft upstream at datum 1.41 ft lower.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by Spruce Run Reservoir (see Raritan River basin, reservoirs in). Several measurements of water temperature, other than those published, were made during the year. New Jersey Water Supply Authority gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	69	11	10	20	18	48	201	47	79	77	170	159
2	67	7.7	15	21	19	42	106	229	78	70	130	159
3	31	7.5	12	22	40	40	106	167	51	61	116	159
4	13	7.1	48	51	38	39	117	80	60	64	120	159
5	49	8.0	14	103	21	43	174	87	42	191	120	206
6	68	7.8	7.9	112	33	70	191	477	57	181	120	230
7	69	7.6	39	101	44	61	176	285	121	114	120	279
8	58	7.3	91	103	72	41	134	164	187	201	120	274
9	51	7.3	87	86	145	38	126	129	135	105	120	272
10	57	7.2	87	59	137	38	113	397	231	82	120	272
11	62	7.2	88	59	117	42	77	420	121	64	120	295
12	70	7.1	111	34	88	56	73	242	57	41	122	310
13	76	7.8	122	18	58	43	76	186	174	74	120	310
14	76	7.7	51	17	43	43	71	166	146	79	120	258
15	76	7.7	15	18	8.5	54	92	182	131	52	114	215
16	76	7.7	15	18	8.4	58	193	380	275	65	110	280
17	76	8.7	15	17	8.4	39	125	524	269	98	108	279
18	76	7.7	14	17	8.4	67	98	291	149	67	107	275
19	76	7.7	13	17	8.4	92	86	201	105	53	108	281
20	76	13	14	26	8.4	44	69	170	92	65	108	117
21	60	8.7	14	47	11	105	65	154	118	149	107	85
22	10	7.4	13	26	71	89	80	130	167	173	113	177
23	9.0	7.1	18	42	107	65	51	139	226	172	124	170
24	9.1	6.7	21	17	93	110	43	303	616	173	124	265
25	8.9	6.6	20	17	80	221	34	202	261	173	131	266
26	8.7	6.6	20	17	31	130	44	140	164	172	146	276
27	8.5	6.7	20	17	51	96	45	133	129	173	146	294
28	8.9	8.8	27	17	48	92	39	118	128	171	112	302
29	8.7	9.2	23	17	---	78	37	79	156	169	138	302
30	11	7.0	20	17	---	92	47	78	94	171	137	302
31	16	---	21	17	---	199	---	80	---	171	159	---
MEAN	46.2	7.85	35.0	37.7	50.6	73.4	96.3	206	154	118	124	241
MAX	76	13	122	112	145	221	201	524	616	201	170	310
MIN	8.5	6.6	7.9	17	8.4	38	34	47	42	41	107	85

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	50.2	29.5	44.1	61.3	66.2	82.7	103	75.6	61.1	72.5	50.0	77.9
MAX	198	81.0	196	257	162	158	342	225	278	244	132	241	241
(WY)	1972	1974	1974	1979	1971	1983	1984	1984	1972	1975	1983	1989	1989
MIN	.00	.00	.00	.00	.00	.19	.86	.81	2.60	4.24	4.32	.50	.50
(WY)	1964	1964	1964	1964	1964	1964	1964	1964	1981	1964	1963	1963	1963

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	99.3	64.5	Unadjusted
HIGHEST ANNUAL MEAN		107	1983
LOWEST ANNUAL MEAN		3.81	1964
HIGHEST DAILY MEAN	616	2060	Jul 7 1984
LOWEST DAILY MEAN	6.6	.00a	Aug 22 1963
INSTANTANEOUS PEAK FLOW	890	6410	Jun 24 1970
INSTANTANEOUS PEAK STAGE	2.86	5.17	Apr 2 1970
INSTANTANEOUS LOW FLOW	5.5	.00a	Aug 22 1963
10 PERCENTILE	214	152	
50 PERCENTILE	77	40	
95 PERCENTILE	7.8	4.4	

a Result of reservoir filling

RARITAN RIVER BASIN

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01396800 SPRUCE RUN AT CLINTON, NJ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD---Water years 1960-62, 1967 to current year.

PERIOD OF DAILY RECORD---

WATER TEMPERATURES: October 1968 to September 1969, January 1971 to September 1980.

SUSPENDED-SEDIMENT DISCHARGE: October 1960 to April 1961.

COOPERATION---Field data and samples for laboratory analyses provided by the New Jersey Department of Environmental Protection, Division of Water Resources. Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988										
11...	1300	62	165	7.8	14.0	9.3	92	E2.2	20	2
FEB 1989										
22...	1215	81	160	7.4	2.5	11.8	87	E1.7	20	17
MAR										
20...	1020	42	160	7.2	4.0	13.6	103	E2.4	<20	<2
JUN										
06...	1200	51	185	7.6	18.0	9.0	96	E1.5	40	33
JUL										
25...	1030	173	200	7.7	18.0	9.3	98	3.0	<20	8
AUG										
02...	1205	142	180	7.4	16.0	8.8	90	4.4	20	11

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988									
11...	62	15	5.9	9.6	1.7	45	19	14	0.1
FEB 1989									
22...	61	15	5.7	8.5	1.4	44	18	13	0.1
MAR									
20...	63	15	6.1	9.8	1.4	43	18	13	0.1
JUN									
06...	57	14	5.4	8.5	1.3	41	17	12	0.1
JUL									
25...	56	14	5.2	7.8	1.3	41	16	11	0.1
AUG									
02...	56	14	5.2	7.8	1.3	43	16	12	0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOROUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988									
11...	2.9	95	0.005	0.23	0.07	0.54	0.77	--	4.8
FEB 1989									
22...	2.4	90	0.004	0.36	<0.05	0.46	0.82	0.040	3.1
MAR									
20...	2.2	91	0.005	0.34	0.12	0.36	0.70	0.100	3.0
JUN									
06...	1.2	84	0.008	0.31	0.10	0.58	0.89	--	3.4
JUL									
25...	4.3	84	0.011	0.42	<0.05	0.46	0.88	0.040	3.0
AUG									
02...	4.6	87	0.044	0.44	<0.05	0.87	1.3	0.410	3.8

RARITAN RIVER BASIN

01396800 SPRUCE RUN AT CLINTON, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SULFIDE TOTAL (MG/L AS S)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, TOTAL (UG/L AS SE)	PHENOLS TOTAL (UG/L)
OCT 1988 11	1300	<0.5	<10	1	<0.10	<1	2

01397000 SOUTH BRANCH RARITAN RIVER AT STANTON, NJ

LOCATION---Lat 40°34'21", long 74°52'10", Hunterdon County, Hydrologic Unit 02030105, on right bank at downstream side of bridge on Stanton Road at Stanton Station, 0.4 mi upstream from Prescott Brook, and 1.4 mi west of Stanton.

DRAINAGE AREA--147 mi².

PERIOD OF RECORD---July 1903 to December 1906, July 1919 to current year. Monthly discharge only for some periods published in WSP 1302.

REVISED RECORDS---WSP 561: Drainage area. WSP 1552: 1904, 1922-24(M), 1928-29(M), 1933-35(M). WDR NJ-88-1: 1982.

GAGE---Water-stage recorder. Datum of gage is 125.01 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 17, 1925, nonrecording gage on downstream side of highway bridge at same site and datum.

REMARKS---No estimated daily discharges. Records good. Flow regulated by Spruce Run Reservoir since September 1963 (see Raritan River basin, reservoirs in). Occasional regulation at low flows by ponds above station. Water diverted by Hamden Pumping Station, 4.0 mi upstream, into Round Valley Reservoir since February 1966 (see Raritan River basin, diversions). Several measurements of water temperature were made during the year. New Jersey Water Supply Authority gage-height and National Weather Service telemeters at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	149	99	216	123	137	190	781	177	290	268	262	215
2	152	119	200	123	133	174	459	829	272	247	217	214
3	155	98	183	124	144	167	416	571	232	229	204	212
4	99	85	205	144	159	164	430	301	232	242	204	208
5	121	110	162	189	124	166	580	300	209	527	201	248
6	146	259	151	284	128	220	659	1770	234	562	200	264
7	144	140	161	220	143	208	596	997	402	334	200	327
8	138	110	217	211	143	168	458	620	629	570	212	325
9	127	99	206	244	225	166	416	494	433	312	194	323
10	130	95	198	169	237	164	379	1340	860	250	188	322
11	134	92	194	158	205	172	306	1550	436	226	195	341
12	136	86	202	169	185	200	284	932	273	188	327	365
13	145	122	293	222	132	185	278	752	652	240	277	363
14	144	197	169	147	155	173	272	627	513	239	231	340
15	143	123	128	299	133	194	306	631	468	188	216	258
16	143	106	128	235	159	213	718	1170	802	206	207	376
17	143	287	145	169	125	170	425	1880	723	305	193	406
18	140	240	133	145	110	201	333	1110	453	213	183	354
19	138	148	139	156	105	322	303	799	344	183	183	581
20	136	1030	116	144	104	198	265	673	294	271	192	3550
21	144	1220	117	166	489	325	247	587	320	299	183	1520
22	283	400	120	127	738	345	253	503	401	310	197	754
23	141	276	121	161	433	240	221	501	559	297	212	618
24	114	231	169	124	311	382	202	1050	1800	283	199	648
25	112	202	258	121	273	876	188	726	813	274	195	548
26	94	182	161	124	202	463	185	501	517	272	212	717
27	86	173	135	147	217	352	189	470	411	265	207	640
28	83	637	140	134	201	321	176	445	397	279	176	554
29	82	344	185	124	---	291	167	336	450	258	202	529
30	80	242	141	143	---	436	181	313	308	253	219	507
31	86	---	130	149	---	913	---	307	---	257	219	---
MEAN	131	252	168	168	209	283	356	750	491	285	210	554
MAX	283	1220	293	299	738	913	781	1880	1800	570	327	3550
MIN	80	85	116	121	104	164	167	177	209	183	176	208

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915
MEAN	154	205	260	280	322	403	377	270	189	178	160	162
MAX	641	659	767	1099	807	1057	1137	750	967	752	793	554
(WY)	1904	1952	1974	1979	1925	1936	1983	1989	1972	1975	1955	1989
MIN	34.1	46.2	65.1	55.0	61.2	61.3	58.5	80.3	60.1	40.7	30.1	31.0
(WY)	1964	1965	1966	1966	1967	1981	1981	1965	1965	1955	1957	1957

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

	1989	Period
AVERAGE FLOW	321	246
HIGHEST ANNUAL MEAN		413
LOWEST ANNUAL MEAN		95.0
HIGHEST DAILY MEAN		8060
LOWEST DAILY MEAN	80	12
INSTANTANEOUS PEAK FLOW	6240	18000a
INSTANTANEOUS PEAK STAGE	9.65	15.22
INSTANTANEOUS LOW FLOW	53	9
10 PERCENTILE	623	490
50 PERCENTILE	220	166
95 PERCENTILE	109	49

a From rating curve extended above 6,400 ft³/s on basis of computation of flow over Clinton Dam, 6.5 mi upstream, at gage height 10.72 ft, contracted-opening measurement 1.7 mi downstream, and slope-area measurement 0.4 mi downstream at gage height 15.22 ft, adjusted to present site.

RARITAN RIVER BASIN

01397400 SOUTH BRANCH RARITAN RIVER AT THREE BRIDGES, NJ

LOCATION.--Lat 40°31'01", long 74°48'12", Hunterdon County, Hydrologic Unit 02030105, at bridge on Main Street in Three Bridges, 0.4 mi northeast of Voorhees Corner, 1.3 mi downstream of Bushkill Brook, and 2.2 mi southeast of Darts Mills.

DRAINAGE AREA.--181 mi².

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

COOPERATION.--Field data and samples for laboratory analyses provided by New Jersey Department of Environmental Protection, Division of Water Resources. Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988 13...	1100	150E	--	8.7	10.5	13.6	--	<1.0	310	33
FEB 1989 14...	1330	180E	298	8.2	2.0	14.4	104	E1.6	130	49
APR 12...	1100	320E	--	8.6	8.5	12.3	--	E1.5	130	13
JUN 20...	1400	340E	255	7.6	20.0	8.6	95	E1.8	330	170
JUL 31...	1215	290E	255	7.9	18.0	8.5	90	E1.4	330	350
AUG 24...	1130	235E	243	7.6	22.0	8.7	100	E1.7	330	1600

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988 13...	96	23	9.4	21	2.6	75	31	22	0.1
FEB 1989 14...	90	22	8.5	23	2.2	67	30	35	0.1
APR 12...	79	19	7.7	14	1.8	55	24	20	0.1
JUN 20...	79	19	7.6	15	5.6	59	22	23	0.1
JUL 31...	84	21	7.7	14	2.0	60	25	20	0.1
AUG 24...	81	20	7.5	15	2.3	64	23	18	0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOROUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988 13...	5.7	160	0.043	1.43	0.08	0.49	1.9	0.23	3.6
FEB 1989 14...	5.7	167	0.036	1.32	0.59	0.99	2.3	0.15	3.0
APR 12...	8.7	128	0.021	1.55	0.32	0.54	2.1	0.13	2.9
JUN 20...	11	139	0.060	1.52	0.23	0.73	2.3	0.16	2.7
JUL 31...	7.0	133	0.051	1.22	0.05	0.50	1.7	0.12	3.1
AUG 24...	8.0	132	0.048	2.15	0.18	0.56	2.7	0.12	3.5

RARITAN RIVER BASIN

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01397400 SOUTH BRANCH RARITAN RIVER AT THREE BRIDGES, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	NITROGEN, NH4 + ORG. TOT IN BOT MAT (MG/KG AS N)	CARBON, INORGANIC, TOT IN BOT MAT (G/KG AS C)	CARBON, INORG + ORGANIC TOT. IN BOT MAT (GM/KG AS C)	ALUMINUM, DIS-SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC IN BOT-TOM MATERIAL (UG/G AS AS)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE)	BORON, TOTAL RECOVERABLE (UG/L AS B)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CADMIUM RECOV. FM BOT-TOM MATERIAL (UG/G AS CD)	
OCT 1988												
13...	1100	--	--	--	<10	1	--	<10	30	<1	--	
13...	1100	170	<0.1	1.8	--	--	4	--	--	--	<10	
DATE		CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, RECOV. FM BOT-TOM MATERIAL (UG/G)	COBALT, RECOV. FM BOT-TOM MATERIAL (UG/G AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, RECOV. FM BOT-TOM MATERIAL (UG/G AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, RECOV. FM BOT-TOM MATERIAL (UG/G AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, RECOV. FM BOT-TOM MATERIAL (UG/G AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, RECOV. FM BOT-TOM MATERIAL (UG/G)
OCT 1988												
13...	<1	--	--	6	--	110	--	<5	--	30	--	--
13...	--	8	<50	--	10	--	4000	--	10	--	510	--
DATE		MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY RECOV. FM BOT-TOM MATERIAL (UG/G AS HG)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	NICKEL, RECOV. FM BOT-TOM MATERIAL (UG/G AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, IN BOT-TOM MATERIAL (UG/G)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, RECOV. FM BOT-TOM MATERIAL (UG/G AS ZN)	PHENOLS TOTAL (UG/L)	PCB, TOTAL IN BOT-TOM MATERIAL (UG/KG)	PCN, TOTAL IN BOT-TOM MATERIAL (UG/KG)
OCT 1988												
13...	<0.10	--	<1	--	<1	--	20	--	1	--	--	--
13...	--	0.01	--	10	--	<1	--	50	--	<1	<1.0	--
DATE		ALDRIN, TOTAL IN BOT-TOM MATERIAL (UG/KG)	CHLORDANE, 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)	DI-AZINON, TOTAL IN BOT-TOM MATERIAL (UG/KG)	DI-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)	ETHION, TOTAL IN BOT-TOM MATERIAL (UG/KG)	HEPTACHLOR, TOTAL IN BOT-TOM MATERIAL (UG/KG)
OCT 1988												
13...	--	--	--	--	--	--	--	--	--	--	--	--
13...	<0.1	<1.0	0.2	0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
DATE		HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL IN BOT-TOM MATERIAL (UG/KG)	MALATHION, TOTAL IN BOT-TOM MATERIAL (UG/KG)	METHOXY-CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARATHION, TOT. IN BOTTOM MATL. (UG/KG)	METHYL TRI-THION, TOT. IN BOTTOM MATL. (UG/KG)	MIREX, TOTAL IN BOT-TOM MATERIAL (UG/KG)	PARATHION, TOTAL IN BOT-TOM MATERIAL (UG/KG)	PER-THANE TOTAL IN BOT-TOM MATERIAL (UG/KG)	TOXAPHENE, TOTAL IN BOT-TOM MATERIAL (UG/KG)	TRI-THION, TOTAL IN BOT-TOM MATERIAL (UG/KG)
OCT 1988												
13...	--	--	--	--	--	--	--	--	--	--	--	--
13...	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.00	<10	<0.1	<0.1

01398000 NESHANIC RIVER AT REAVILLE, NJ

LOCATION---Lat 40°28'18", long 74°49'42", Hunterdon County, Hydrologic Unit 02030105, on left bank 50 ft downstream from bridge on Everitts Road, 0.6 mi southwest of Reaville, 1.5 mi downstream from Third Neshanic River, and 2.2 mi upstream from Back Brook.

DRAINAGE AREA--25.7 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD---June 1930 to current year.

REVISED RECORDS--WSP 1552: 1933, 1934(M), 1936(M), 1938, 1940(M), 1942(M), 1945-46, 1951, 1952(M).

GAGE---Water-stage recorder. Concrete control since Sept. 26, 1935. Datum of gage is 109.46 ft above National Geodetic Vertical Datum of 1929.

REMARKS---No estimated daily discharges. Records fair. Several measurements of water temperature, other than those published, were made during the year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	15	54	16	28	28	175	20	18	19	7.8	4.3
2	3.5	15	42	16	25	24	80	714	15	16	6.6	4.5
3	3.7	8.6	35	15	29	23	76	118	13	14	7.6	3.5
4	1.9	7.1	29	10	24	22	64	70	20	41	5.6	3.0
5	1.7	21	25	11	20	23	55	81	12	176	5.1	2.9
6	1.5	41	23	9.1	20	34	91	303	21	62	4.4	2.8
7	1.4	18	21	10	19	31	68	125	157	39	20	2.8
8	1.5	13	18	24	16	26	57	74	92	39	5.6	2.7
9	1.5	11	16	27	12	26	49	57	353	22	4.5	2.4
10	1.4	9.5	14	17	12	29	40	585	477	18	4.0	2.3
11	1.3	8.5	11	15	12	42	34	310	81	15	8.5	2.1
12	1.0	6.9	10	56	10	55	30	127	52	12	43	2.0
13	1.0	36	9.3	51	9.7	45	27	87	178	29	28	1.9
14	1.0	26	10	30	24	41	25	67	85	18	16	5.8
15	1.1	16	10	139	36	43	73	55	74	12	131	6.5
16	1.2	14	8.1	63	54	34	157	246	88	22	55	8.0
17	1.0	190	7.7	44	29	28	60	340	60	27	25	20
18	1.0	54	7.1	36	25	36	47	111	43	15	17	5.1
19	1.1	36	7.1	33	22	40	42	73	33	12	16	344
20	1.1	954	7.1	28	20	28	33	56	27	55	15	2800
21	19	222	11	19	320	76	29	45	28	42	12	352
22	72	81	9.2	18	224	47	26	35	37	24	13	107
23	11	58	11	17	103	36	23	48	30	19	9.2	70
24	11	45	42	16	64	150	21	180	388	15	7.5	46
25	8.1	36	43	15	46	180	19	63	70	13	6.2	35
26	5.8	31	21	16	41	75	18	44	47	11	5.4	92
27	5.1	33	17	20	40	56	16	44	35	9.7	4.8	44
28	4.6	667	28	15	33	47	14	33	37	14	4.6	33
29	4.3	108	31	14	---	41	14	26	44	7.8	10	28
30	3.6	70	20	44	---	90	35	22	23	6.8	13	23
31	3.2	---	18	35	---	326	---	20	---	8.8	5.2	---
MEAN	5.75	95.1	19.9	28.4	47.1	57.5	49.9	135	87.9	26.9	16.7	135
MAX	72	954	54	139	320	326	175	714	477	176	131	2800
MIN	1.0	6.9	7.1	9.1	9.7	22	14	20	12	6.8	4.0	1.9
IN.	.26	4.13	.89	1.27	1.91	2.58	2.17	6.05	3.82	1.21	.75	5.87

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	11.8	34.7	46.5	50.9	60.5	75.2	56.3	32.8	20.7	18.9	19.1	16.4
MEAN	11.8	34.7	46.5	50.9	60.5	75.2	56.3	32.8	20.7	18.9	19.1	16.4
MAX	78.8	139	162	244	147	179	200	135	118	137	216	135
(WY)	1956	1933	1984	1979	1939	1936	1983	1989	1972	1938	1971	1989
MIN	.67	.90	1.59	1.14	3.92	15.2	7.20	3.78	1.11	.37	.44	.47
(WY)	1965	1966	1966	1981	1934	1985	1985	1963	1965	1966	1964	1965

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	58.5	36.8
HIGHEST ANNUAL MEAN		67.1
LOWEST ANNUAL MEAN		14.5
HIGHEST DAILY MEAN	2800	4740
LOWEST DAILY MEAN	1.0	.00
INSTANTANEOUS PEAK FLOW	6330	15900a
INSTANTANEOUS PEAK STAGE	10.92	13.84b
INSTANTANEOUS LOW FLOW	.77	.00
ANNUAL RUNOFF (INCHES)	30.91	19.46
10 PERCENTILE	96	77
50 PERCENTILE	25	13
95 PERCENTILE	1.9	.71

- a From rating curve extended above 1,700 ft³/s on basis of slope-area measurement 0.7 mi downstream (adjusted to present site) at gage height 11.90 ft
- b From high-water mark in gage house

01398000 NESHANIC RIVER AT REAVILLE, NJ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1957, 1962, 1979 to current year.

COOPERATION.--Field data and samples for laboratory analyses provided by New Jersey Department of Environmental Protection Division of Water Resources. Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988 03...	1130	3.2	867	8.4	17.5	10.1	107	2.4	16000	>2400
FEB 1989 14...	1100	30	426	7.9	1.5	13.2	94	5.7	2400	>2400
APR 12...	0930	30	252	9.1	4.0	13.5	103	<0.7	330	49
JUN 20...	0930	28	267	7.9	18.0	8.6	91	E1.8	1300	1600
JUL 31...	1100	9.8	434	7.7	18.0	5.7	60	<1.2	630	>2400
AUG 24...	1000	7.6	332	7.5	20.0	6.8	75	<0.8	490	920

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988 03...	300	84	21	59	3.9	68	110	170	0.1
FEB 1989 14...	100	28	8.3	34	2.3	41	45	57	0.1
APR 12...	83	21	7.4	13	1.4	40	40	19	0.1
JUN 20...	86	22	7.5	14	2.1	48	35	17	0.1
JUL 31...	140	38	12	27	2.5	68	52	62	0.1
AUG 24...	120	31	9.4	14	2.2	72	47	23	0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988 03...	1.3	490	0.038	0.48	<0.05	0.56	1.0	0.03	6.4
FEB 1989 14...	8.5	208	0.022	2.02	0.27	0.96	3.0	0.20	4.3
APR 12...	10	136	0.011	2.13	0.09	0.22	2.4	0.04	2.1
JUN 20...	13	140	0.010	2.32	0.11	0.21	2.5	0.06	1.8
JUL 31...	9.1	243	0.027	1.35	<0.05	0.32	1.7	0.05	2.5
AUG 24...	6.0	176	0.018	2.08	<0.05	0.42	2.5	0.06	3.8

01398000 NESHANIC RIVER AT REAVILLE, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

01398107 HOLLAND BROOK AT READINGTON, NJ

LOCATION.--Lat 40°33'30", long 74°43'50", Somerset County, Hydrologic Unit 02030105, on right bank 15 ft downstream from bridge on Old York Road, 0.9 mi southeast of Readington, and 2.5 mi upstream from mouth.

DRAINAGE AREA.--9.00 mi².

PERIOD OF RECORD.--June 1978 to current year.

REVISED RECORDS.--WDR NJ-80-1: 1978, 1979(P). WDR NJ-82-1: Drainage area.

GAGE.--Water-stage recorder, crest-stage gage, and concrete parking-block control. Datum of gage is 77.65 ft above National Geodetic Vertical Datum of 1929 (levels by Somerset County).

REMARKS.--Records good. Several measurements of water temperature were made during the year. Recording rain-gage and gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	8.2	24	5.4	e13	13	81	9.8	7.9	5.9	3.2	1.8
2	2.7	8.9	17	5.2	e12	12	41	e260	6.8	5.3	2.9	1.8
3	3.9	7.1	13	4.8	e13	12	35	52	5.9	4.8	2.9	1.6
4	2.2	6.3	11	3.9	e11	11	30	28	5.7	4.5	2.6	1.5
5	2.0	13	9.0	3.1	e10	11	28	26	5.0	24	2.5	1.4
6	1.9	16	7.5	3.1	9.7	13	34	103	11	12	2.3	1.6
7	1.8	12	6.6	3.1	8.9	11	31	47	95	9.3	2.3	1.6
8	1.9	10	5.9	4.1	7.8	11	28	30	58	27	2.1	1.5
9	1.8	8.6	5.1	5.5	6.2	11	24	23	95	12	1.9	1.5
10	1.9	7.6	4.4	4.0	6.2	13	20	220	112	9.7	1.8	1.3
11	1.7	6.5	3.8	3.7	6.1	15	18	130	35	7.7	3.2	1.2
12	1.6	5.4	2.9	7.8	5.7	16	16	57	22	6.4	6.4	1.2
13	1.6	15	2.8	15	5.1	e12	15	41	73	10	4.0	1.2
14	1.6	12	3.1	11	8.3	e11	14	30	38	7.1	3.1	2.5
15	1.7	11	3.1	31	9.7	15	24	25	37	5.4	3.7	2.6
16	1.6	9.8	2.7	30	13	14	47	110	33	9.1	3.5	2.1
17	1.6	71	2.4	21	11	13	29	162	25	10	2.7	3.9
18	1.6	32	2.2	15	11	e15	24	58	18	7.5	2.4	1.9
19	e1.6	21	2.3	13	10	e18	21	34	14	6.3	2.4	52
20	1.6	274	2.1	12	9.4	14	17	25	12	9.9	2.6	328
21	6.1	91	2.5	8.8	e146	24	16	20	11	7.1	2.3	93
22	25	34	2.6	8.1	71	22	14	16	10	6.3	2.3	32
23	8.6	23	2.4	7.7	42	19	13	21	9.1	5.4	2.8	21
24	8.0	20	5.4	7.3	29	51	12	30	42	4.7	2.2	15
25	6.5	16	10	6.6	22	57	12	20	15	4.3	1.9	12
26	5.3	14	6.1	6.8	19	33	11	17	12	4.1	1.8	21
27	4.7	14	5.2	7.5	18	25	10	16	9.9	4.0	1.8	15
28	4.3	142	6.0	6.1	15	21	9.2	13	9.4	4.5	1.8	12
29	3.9	57	8.2	6.0	---	19	9.1	11	9.4	3.3	2.9	11
30	3.5	36	6.6	e16	---	64	13	9.8	6.8	3.3	3.1	9.1
31	3.4	---	6.3	e14	---	141	---	9.0	---	3.4	1.9	---
MEAN	3.79	33.4	6.20	9.57	19.6	23.8	23.2	53.3	28.1	7.88	2.69	21.8
MAX	25	274	24	31	146	141	81	260	112	27	6.4	328
MIN	1.6	5.4	2.1	3.1	5.1	11	9.1	9.0	5.0	3.3	1.8	1.2
IN.	.49	4.14	.79	1.23	2.27	3.05	2.88	6.83	3.49	1.01	.34	2.70

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	5.61	16.3	18.7	21.6	25.1	24.8	26.5	20.9	9.17	7.64	5.40	6.50
MAX	20.9	34.4	56.1	102	56.4	49.5	59.4	53.3	28.1	26.4	26.6	21.8	
(WY)	1980	1986	1984	1979	1979	1983	1983	1989	1989	1984	1978	1989	
MIN	1.10	2.85	1.93	1.93	4.69	7.05	3.02	5.68	3.25	1.63	1.23	1.13	
(WY)	1983	1983	1981	1981	1980	1985	1985	1986	1981	1980	1983	1983	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	19.4	15.5
HIGHEST ANNUAL MEAN		25.7
LOWEST ANNUAL MEAN		7.06
HIGHEST DAILY MEAN	328	504
LOWEST DAILY MEAN	1.2	.37
INSTANTANEOUS PEAK FLOW	956	1300
INSTANTANEOUS PEAK STAGE	6.71	8.08
INSTANTANEOUS LOW FLOW	1.2	.22
ANNUAL RUNOFF (INCHES)	29.27	23.37
10 PERCENTILE	38	34
50 PERCENTILE	9.4	6.1
95 PERCENTILE	1.4	.87

e Estimated

RARITAN RIVER BASIN

01398260 NORTH BRANCH RARITAN RIVER NEAR CHESTER, NJ

LOCATION.--Lat 40°46'16", long 74°37'34", Morris County, Hydrologic Unit 02030105, at bridge on State Route 24, 0.8 mi upstream from Burnett Brook, and 3.8 mi east of Chester.

DRAINAGE AREA.--7.57 mi².

PERIOD OF RECORD.--Water years 1964-65, 1967, 1976 to current year.

COOPERATION.--Field data and samples for laboratory analyses provided by New Jersey Department of Environmental Protection, Division of Water Resources. Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988 27...	1100	4.0E	260	7.4	5.5	12.7	101	2.8	1300	350
FEB 1989 01...	1100	7.7E	220	7.6	4.5	13.1	104	3.0	220	79
MAR 20...	1045	9.9E	200	7.8	5.0	12.7	100	E2.0	80	5
MAY 24...	1245	35 E	175	7.7	13.5	10.4	103	E1.9	5400	>2400
JUL 17...	1030	10.2E	240	7.4	17.0	9.3	98	E1.9	790	1600
AUG 08...	1045	4.3E	261	7.6	16.5	9.7	101	E1.5	490	1600

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988 27...	80	19	7.8	17	2.5	51	18	30	0.1
FEB 1989 01...	65	16	6.2	18	2.0	41	17	33	0.1
MAR 20...	63	15	6.1	22	1.7	39	17	37	0.2
MAY 24...	43	11	3.8	13	1.5	23	11	20	0.1
JUL 17...	67	17	5.9	15	1.8	40	13	26	0.1
AUG 08...	83	21	7.4	15	2.2	52	14	28	0.2

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988 27...	18	143	0.054	1.09	0.60	0.95	2.0	0.42	3.0
FEB 1989 01...	15	132	0.013	1.03	1.10	1.4	2.4	0.36	3.0
MAR 20...	14	136	0.015	0.90	0.68	1.1	2.0	0.24	3.4
MAY 24...	11	85	0.019	0.69	0.06	0.55	1.2	0.12	4.9
JUL 17...	15	118	0.041	2.06	0.06	0.69	2.8	0.25	3.7
AUG 08...	18	137	0.042	2.45	<0.05	0.29	2.7	0.45	2.8

01398260 NORTH BRANCH RARITAN RIVER NEAR CHESTER, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SULFIDE TOTAL (MG/L AS S)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE)	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)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1988 27...	1100	<0.5	<10	1	<10	110	<1	<1	3
MAY 1989 24...	1245	<0.5	50	<1	<10	40	<1	2	5

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	PHENOLS TOTAL (UG/L)
OCT 1988 27...	50	<5	<10	<0.10	2	<1	<10	2
MAY 1989 24...	660	2	30	<0.10	<1	<1	10	3

01398500 NORTH BRANCH RARITAN RIVER NEAR FAR HILLS, NJ

LOCATION.--Lat 40°42'30", long 74°38'11", Somerset County, Hydrologic Unit 02030105, on left bank 75 ft upstream from Ravine Lake Dam, 1.6 mi north of Far Hills, and 2.3 mi upstream from Peapack Brook.

DRAINAGE AREA.--26.2 mi².

PERIOD OF RECORD.--October 1921 to September 1975, October 1977 to current year. Operated as crest-stage gage, water years 1976-77. Monthly discharge only for some periods, published in WSP 1302.

REVISED RECORDS.--WSP 781: Drainage area. WSP 1552: 1922-23, 1924-25(M), 1935(M). WSP 1902: 1954.

GAGE.--Water-stage recorder and crest-stage gage above masonry dam. Datum of gage is 224.49 ft above National Geodetic Vertical Datum of 1929 (New Jersey Geological Survey bench mark). Prior to June 18, 1925, nonrecording gage in stilling box at left end of dam at same datum.

REMARKS.--No estimated daily discharges. Records good. Records given herein include diversion by small turbine at dam (average discharge, 3.0 ft³/s) and returned to river 1,000 ft downstream from Ravine Lake Dam. Turbine operating from Oct. 1-15 and Apr. 15 to Sept. 30. Flow regulated occasionally by operation of waste gate in dam (no gate opening this year). Recording rain gage, with telemeter, 500 ft downstream of station. Several measurements of water temperature were made during the year. Gage-height telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Stage of 7.6 ft, from floodmark, occurred July 23, 1919, discharge about 7,000 ft³/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	22	61	33	35	41	163	70	73	44	22	11
2	15	44	48	33	34	39	103	319	69	41	21	11
3	27	43	40	33	36	39	105	98	65	40	28	9.4
4	18	41	46	29	36	39	107	75	64	39	22	8.6
5	17	41	46	22	34	39	131	100	61	85	20	8.5
6	16	56	45	31	34	47	147	516	66	63	18	8.9
7	16	27	44	31	34	42	114	163	113	48	23	9.3
8	18	23	43	39	32	38	99	124	112	68	20	8.9
9	19	26	42	43	29	39	95	116	81	42	17	8.9
10	15	25	41	34	29	40	86	307	134	38	16	9.3
11	14	23	40	32	32	41	81	261	67	38	22	9.1
12	13	17	32	46	31	45	78	162	53	34	43	8.2
13	13	32	37	52	31	42	81	151	114	39	33	8.1
14	15	48	40	36	40	40	86	140	66	38	24	8.3
15	16	31	39	65	43	43	106	135	74	32	22	16
16	14	25	37	45	47	42	211	391	122	39	23	12
17	14	73	34	37	38	39	110	517	69	51	19	18
18	15	45	32	35	35	49	96	222	59	37	17	13
19	18	32	35	34	34	58	93	181	55	34	17	59
20	16	405	34	36	34	46	85	157	52	55	20	422
21	18	199	37	32	238	72	82	137	54	43	18	104
22	74	86	37	31	104	56	78	124	113	37	20	45
23	31	71	38	33	61	47	76	142	121	34	17	43
24	24	63	59	33	51	90	75	242	164	30	24	33
25	25	58	61	33	45	129	74	129	70	28	15	26
26	18	55	39	34	45	68	73	107	59	28	13	49
27	16	53	35	39	44	61	72	108	54	25	12	35
28	14	226	38	35	42	59	69	94	54	28	11	27
29	14	81	45	34	---	57	68	84	50	23	13	25
30	13	61	36	38	---	97	74	81	46	20	17	20
31	13	---	34	38	---	257	---	79	---	21	12	---
MEAN	18.8	67.7	41.1	36.3	47.4	59.4	97.3	178	78.5	39.4	20.0	35.8
MAX	74	405	61	65	238	257	211	517	164	85	43	422
MIN	13	17	32	22	29	38	68	70	46	20	11	8.1
IN.	.83	2.89	1.81	1.60	1.89	2.61	4.14	7.85	3.34	1.74	.88	1.53

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	24.7	42.4	49.0	52.9	60.1	81.4	82.6	59.8	38.7	31.2	28.3	27.8
MAX	97.4	170	124	182	128	207	226	178	190	132	153	134	134
(WY)	1956	1928	1974	1979	1973	1936	1983	1989	1972	1984	1942	1971	1971
MIN	6.29	9.22	8.43	6.76	22.1	22.8	26.8	20.0	10.5	4.41	4.55	3.61	3.61
(WY)	1954	1965	1981	1981	1934	1981	1985	1965	1965	1966	1965	1964	1964

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	60.0	48.1
HIGHEST ANNUAL MEAN		89.7
LOWEST ANNUAL MEAN		17.7
HIGHEST DAILY MEAN	517	1260
LOWEST DAILY MEAN	8.1	.20
INSTANTANEOUS PEAK FLOW	1330	6390a
INSTANTANEOUS PEAK STAGE	4.07	7.28
INSTANTANEOUS LOW FLOW	7.7	.00
ANNUAL RUNOFF (INCHES)	31.09	24.95
10 PERCENTILE	117	99
50 PERCENTILE	41	33
95 PERCENTILE	13	6.8

a From rating curve extended above 2,000 ft³/s on basis of computation of peak flow over dam

01399120 NORTH BRANCH RARITAN RIVER AT BURNT MILLS, NJ

LOCATION.--Lat 40°38'09", long 74°40'56", Somerset County, Hydrologic Unit 02030105, at bridge on Burnt Mills Road in Burnt Mills, 0.1 mi upstream from Lamington River, and 4.0 mi southwest of Far Hills.

DRAINAGE AREA.--63.8 mi².

PERIOD OF RECORD.--Water years 1964, 1977 to current year.

COOPERATION.--Field data and samples for laboratory analyses provided by New Jersey Department of Environmental Protection, Division of Water Resources. Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, EC BROTH (MPN)	STREP- TOCOCCI FECAL (MPN)
NOV 1988 03...	1200	83E	258	7.3	5.0	12.8	101	2.6	330	130
JAN 1989 26...	1350	65E	265	8.3	2.0	14.0	102	<1.1	130	9
APR 04...	1330	148E	206	7.0	9.5	11.2	99	E2.2	2400	170
MAY 16...	1345	460E	147	7.1	16.5	9.0	93	3.4	>24000	>2400
JUL 18...	1045	71E	250	7.3	20.5	9.0	100	E1.6	790	1300
AUG 02...	1000	42E	235	7.4	20.0	8.6	94	<1.2	2400	>2400

DATE	HARD- NESS TOTAL (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)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
NOV 1988 03...	79	19	7.7	12	2.3	57	21	25	0.1
JAN 1989 26...	81	20	7.6	16	1.6	52	19	25	0.1
APR 04...	64	16	5.8	13	1.2	39	19	24	<0.1
MAY 16...	47	12	4.2	8.1	1.8	29	13	12	0.1
JUL 18...	76	19	7.0	12	1.7	55	15	20	0.1
AUG 02...	88	22	8.1	13	1.7	63	16	22	0.1

DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHOROUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV 1988 03...	12	133	0.016	0.87	0.07	0.36	1.2	--	3.9
JAN 1989 26...	11	131	0.013	1.20	<0.05	0.17	1.4	0.09	1.6
APR 04...	12	114	0.010	0.89	0.08	0.36	1.2	0.07	2.3
MAY 16...	7.5	76	0.030	1.33	0.10	1.2	2.5	0.25	11
JUL 18...	14	122	0.020	1.09	<0.05	0.29	1.4	0.10	3.5
AUG 02...	11	132	0.044	1.07	<0.05	0.26	1.3	0.11	2.8

RARITAN RIVER BASIN

01399120 NORTH BRANCH RARITAN RIVER AT BURNT MILLS, NJ

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SULFIDE TOTAL (MG/L AS S)	NITRO- GEN, NH ₄ + ORG. TOT IN BOT MAT (MG/KG AS N)	CARBON, INOR- GANIC, TOT IN BOT MAT (G/KG AS C)	CARBON, INORG + ORGANIC TOT. IN BOT MAT (GM/KG AS C)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC IN BOT- TOM MA- TERIAL (UG/G AS AS)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CD)
NOV 1988 03...	1200	<0.5	--	--	--	<10	<1	--	<10	50	<1	--
03...	1200	--	130	0.2	0.7	--	--	3	--	--	--	<10
DATE		CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	CHRO- MIUM, RECOV. FM BOT- TOM MA- TERIAL (UG/G)	COBALT, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, RECOV. FM BOT- TOM MA- TERIAL (UG/G)
NOV 1988 03...	1	--	--	--	3	--	230	--	<5	--	20	--
03...	--	4	<10	--	4	--	5900	--	<100	--	170	--
DATE		MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY RECOV. FM BOT- TOM MA- TERIAL (UG/G AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	NICKEL, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SELE- NIUM, IN BOT- TOM MA- TERIAL (UG/G)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS ZN)	PHENOLS TOTAL (UG/L)	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PCN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
NOV 1988 03...	<0.10	--	5	--	<1	--	20	--	2	--	--	--
03...	--	0.01	--	<10	--	<1	--	20	--	<1	<1.0	--
DATE		ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- AZINON, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDO- SULFAN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ETHION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
NOV 1988 03...	--	--	--	--	--	--	--	--	--	--	--	--
03...	<0.1	<1.0	0.1	0.1	0.2	<0.1	<0.1	0.9	<0.1	<0.1	<0.1	<0.1
DATE		HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	MALA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA- THION, TOT. IN BOTTOM MATL. (UG/KG)	METHYL TRI- THION, TOT. IN BOTTOM MATL. (UG/KG)	MIREX, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PARA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PER- THANE IN BOT- TOM MA- TERIAL (UG/KG)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TRI- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
NOV 1988 03...	--	--	--	--	--	--	--	--	--	--	--	--
03...	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.00	<10	<0.1	<0.1

01399200 LAMINGTON (BLACK) RIVER NEAR IRONIA, NJ

LOCATION---Lat 40°50'07", long 74°38'40", Morris County, Hydrologic Unit 02030105, on left bank 15 ft upstream from bridge on Ironia Road, 1.0 mi below Succasunna Brook, 1.3 mi northwest of Ironia, and 4.4 mi northeast of Chester.

DRAINAGE AREA---10.9 mi².

PERIOD OF RECORD---Water years 1977 to current year.

COOPERATION---Field data and samples for laboratory analyses provided by the New Jersey Department of Environmental Protection Division of Water Resources. Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988										
27...	1300	8.2E	462	7.3	7.5	9.8	83	5.0	2400	350
FEB 1989										
01...	1300	11 E	380	7.5	7.5	11.4	99	3.5	110	46
MAR										
20...	1215	7.6E	--	7.4	6.5	11.8	--	2.8	70	6
MAY										
24...	1045	49 E	275	7.3	13.5	5.9	59	E1.4	3500	1600
JUL										
17...	1200	16 E	300	7.3	19.5	7.6	85	<1.0	1700	540
AUG										
09...	1415	7.3E	397	7.4	19.0	9.3	102	E1.3	790	350

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988									
27...	120	28	12	44	4.3	82	23	68	0.1
FEB 1989									
01...	110	26	11	38	3.7	82	20	61	0.1
MAR									
20...	100	24	10	43	3.4	78	20	67	0.1
MAY									
24...	70	17	6.6	21	1.9	50	14	33	0.1
JUL									
17...	96	23	9.3	26	2.3	67	15	45	0.1
AUG									
09...	110	25	11	33	3.0	71	18	57	0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988									
27...	12	241	0.188	3.23	0.38	1.2	4.4	0.27	9.1
FEB 1989									
01...	11	220	0.052	2.09	1.17	1.5	3.6	0.26	4.7
MAR									
20...	11	225	0.019	1.82	0.22	0.90	2.7	0.14	5.9
MAY									
24...	7.2	131	0.026	0.53	0.08	0.66	1.2	0.10	7.2
JUL									
17...	10	171	0.028	1.07	0.85	--	--	0.09	4.9
AUG									
09...	9.3	199	0.028	2.47	<0.05	0.28	2.8	0.10	4.3

RARITAN RIVER BASIN

01399200 LAMINGTON (BLACK) RIVER NEAR IRONIA, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SULFIDE TOTAL (MG/L AS S)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE)	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)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1988 27...	1300	<0.5	<10	<1	<10	100	<1	2	6

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	PHENOLS TOTAL (UG/L)
OCT 1988 27...	480	<5	140	<0.10	4	<1	10	1

01399500 LAMINGTON (BLACK) RIVER NEAR POTTERSVILLE, NJ

LOCATION.--Lat 40°43'39", long 74°43'50", Morris County, Hydrologic Unit 02030105, on right bank 1.1 mi upstream from bridge on State Highway 512, 1.2 mi northwest of Pottersville, and 5.5 mi upstream from Cold Brook. Water-quality samples collected at bridge 1.1 mi downstream from gage at high flows.

DRAINAGE AREA.--32.8 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1921 to current year. Monthly discharge only for October and November 1921, published in WSP 1302. Prior to October 1952, published as "Black River near Pottersville".

REVISED RECORDS.--WSP 741: 1932. WSP 781: Drainage area. WSP 1552: 1922, 1924-29(M), 1931(M), 1933-34(M), 1938(P), 1939(M), 1940, 1941(M), 1942-46(P), 1947(M), 1948-49(P), 1951-52(P), 1953(M). WDR-NJ-80-1: Correction 1979(P).

GAGE.--Water-stage recorder. Concrete control since July 1, 1937. Datum of gage is 284.14 ft above National Geodetic Vertical Datum of 1929 (levels from New Jersey Geological Survey bench mark). Prior to July 1, 1922, nonrecording gage on downstream side of highway bridge at Pottersville, 1.1 mi downstream at different datum.

REMARKS.--Records poor. Flow regulated occasionally by pond above station. Several measurements of water temperature, other than those published, were made during the year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	26	75	34	34	19	e65	34	79	68	27	18
2	14	28	70	e26	e30	18	e61	e130	71	61	26	17
3	17	23	63	e21	e26	18	e63	e105	64	53	27	16
4	14	21	56	e18	e25	18	e53	98	59	50	26	15
5	13	28	51	e32	e24	18	e50	129	56	75	25	15
6	13	34	48	48	27	19	e53	267	57	72	24	15
7	13	29	46	46	27	18	e51	e240	83	65	24	15
8	13	30	44	42	24	20	e48	213	95	81	23	15
9	13	31	42	41	23	18	e46	174	95	66	22	15
10	13	31	e34	35	e25	18	35	220	132	60	22	14
11	12	31	e28	33	25	18	29	219	91	57	25	14
12	12	28	e25	41	24	18	26	181	80	50	35	13
13	12	37	e23	43	24	18	25	165	104	49	31	12
14	12	44	23	e38	28	18	25	137	83	45	27	15
15	12	52	24	57	32	19	53	136	91	41	28	17
16	11	68	22	43	31	20	97	234	116	50	30	17
17	11	108	22	e37	e32	19	72	302	100	52	28	23
18	11	87	20	e36	e30	21	78	272	94	44	26	18
19	11	81	20	34	e31	24	68	258	86	42	26	54
20	11	236	20	31	e27	24	55	216	76	54	25	242
21	15	137	19	27	81	32	51	179	71	47	25	140
22	39	103	19	e29	52	28	48	145	72	44	25	127
23	26	102	21	34	27	24	40	142	66	42	23	115
24	27	96	41	33	24	37	38	179	173	39	21	80
25	26	91	57	30	23	e82	42	156	145	37	20	61
26	26	82	43	31	24	75	38	148	141	35	19	e73
27	25	77	42	37	21	71	41	141	120	33	19	e70
28	24	125	47	34	19	62	40	124	106	32	19	e57
29	23	87	47	33	---	60	38	107	91	28	21	e50
30	21	77	41	35	---	68	37	96	78	27	21	e47
31	19	---	39	36	---	81	---	89	---	27	19	---
MEAN	16.8	67.7	37.8	35.3	29.3	32.4	48.9	169	92.5	49.2	24.5	46.7
MAX	39	236	75	57	81	82	97	302	173	81	35	242
MIN	11	21	19	18	19	18	25	34	56	27	19	12
IN.	.59	2.30	1.33	1.24	.93	1.14	1.66	5.94	3.15	1.73	.86	1.59

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	33.6	50.2	58.6	63.7	70.9	89.8	88.3	67.0	45.9	37.8	33.9	33.8
MAX	116	163	170	225	144	230	239	169	191	165	125	123	
(WY)	1956	1928	1974	1979	1973	1936	1984	1989	1972	1984	1928	1971	
MIN	5.69	11.2	15.4	11.7	28.0	32.0	25.9	19.0	10.1	5.48	5.61	3.76	
(WY)	1931	1965	1981	1981	1934	1981	1985	1965	1965	1965	1966	1964	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	54.3	56.0
HIGHEST ANNUAL MEAN		104
LOWEST ANNUAL MEAN		20.5
HIGHEST DAILY MEAN	302	905
LOWEST DAILY MEAN	11	1.5
INSTANTANEOUS PEAK FLOW	658	3460a
INSTANTANEOUS PEAK STAGE	3.57	5.94b
INSTANTANEOUS LOW FLOW	11	1.3
ANNUAL RUNOFF (INCHES)	22.48	23.19
10 PERCENTILE	117	114
50 PERCENTILE	36	43
95 PERCENTILE	14	11

a From rating curve extended above 380 ft³/s on basis of slope-area measurement at gage height 4.71 ft

b From floodmark

e Estimated

RARITAN RIVER BASIN

01399500 LAMINGTON (BLACK) RIVER NEAR POTTERSVILLE, NJ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD---Water years 1977 to current year.

COOPERATION---Field data and samples for laboratory analyses provided by the New Jersey Department of Environmental Protection, Division of Water Resources. Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988										
31...	1300	18	280	7.7	4.5	13.2	102	<1.0	20	130
FEB 1989										
06...	1300	30	240	7.5	1.0	14.6	104	E1.4	3500	17
MAR										
20...	1330	23	180	7.5	4.5	12.7	98	E1.5	2400	9
JUN										
21...	1045	72	250	7.8	19.5	9.0	98	E1.5	40	920
JUL										
17...	1330	51	220	7.9	18.5	9.4	102	<1.0	130	1600
AUG										
08...	1345	23	174	7.8	18.5	9.7	105	<0.9	330	350

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988									
31...	77	17	8.4	22	7.5	47	23	37	0.1
FEB 1989									
06...	73	17	7.4	19	1.9	45	19	34	0.1
MAR									
20...	55	13	5.5	17	1.7	35	14	29	0.1
JUN									
21...	67	16	6.6	15	1.3	47	11	26	0.1
JUL									
17...	64	15	6.4	14	1.4	46	10	25	0.1
AUG									
08...	79	19	7.7	18	1.5	57	11	32	0.2

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988									
31...	14	157	0.005	0.73	<0.05	0.44	1.2	0.02	3.6
FEB 1989									
06...	13	138	0.008	1.40	0.16	0.44	1.8	0.05	2.6
MAR									
20...	10	111	0.010	0.99	0.07	0.46	1.5	0.05	5.1
JUN									
21...	12	116	0.005	0.52	0.05	0.51	1.0	0.10	6.0
JUL									
17...	14	113	0.006	0.60	<0.05	0.38	0.98	0.09	5.1
AUG									
08...	16	140	0.018	0.71	<0.05	0.35	1.1	0.09	4.4

01399500 LAMINGTON (BLACK) RIVER NEAR POTTERSVILLE, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SULFIDE TOTAL (MG/L AS S)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE)	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)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1988 31...	1300	<0.5	<10	<1	<10	80	1	<1	2
JUN 1989 21...	1045	<0.5	10	<1	<10	30	<1	<1	2

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	PHENOLS TOTAL (UG/L)
OCT 1988 31...	160	<5	10	<0.10	3	<1	10	2
JUN 1989 21...	680	1	50	0.50	1	<1	<10	18

RARITAN RIVER BASIN

01399510 UPPER COLD BROOK NEAR POTTERSVILLE, NJ

LOCATION---Lat 40°43'16", long 74°45'09", Hunterdon County, Hydrologic Unit 02030105, on right bank along a private dirt road, 400 ft downstream from the former Pottersville Reservoir, and 1.5 mi west of Pottersville.

DRAINAGE AREA---2.18 mi².

PERIOD OF RECORD---October 1972 to current year.

REVISED RECORDS---WDR-NJ-84-1: 1975(P), 1980-83(P). WDR NJ-88-1: 1979.

GAGE---Water-stage recorder and rock outcrop control. Datum of gage is 451.57 ft above National Geodetic Vertical Datum of 1929.

REMARKS---Records fair except for estimated daily discharges, which are poor. Flow regulated by Pottersville Reservoir, 400 ft above station, until August 1982 when dam was demolished. Several measurements of water temperature were made during the year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e1.06	2.7	3.3	2.1	2.3	2.5	7.6	3.3	4.1	3.7	2.1	1.5
2	e1.21	1.9	3.2	2.1	2.3	2.4	6.0	23	3.9	3.5	2.0	1.5
3	e1.49	1.5	3.0	2.1	2.4	2.4	6.3	5.5	3.5	3.3	2.2	1.4
4	e1.09	1.5	2.9	2.4	2.1	2.3	7.2	4.5	3.4	3.5	1.8	1.3
5	e1.08	3.0	2.9	2.7	2.1	2.5	6.8	17	3.1	8.7	1.7	1.4
6	e1.10	2.9	2.7	2.7	2.1	3.0	8.1	29	3.9	4.7	1.5	1.4
7	e1.11	1.7	2.7	3.9	2.0	2.5	5.9	10	9.8	4.6	1.6	1.4
8	e1.13	1.6	2.7	3.1	1.9	3.4	5.3	7.4	5.7	6.3	1.5	1.4
9	e1.12	1.5	2.7	2.2	2.2	2.8	5.3	6.4	8.3	3.3	1.4	1.4
10	e1.10	1.5	2.3	2.1	2.2	2.4	4.8	28	9.8	3.1	1.4	1.3
11	e1.03	1.4	2.2	3.8	2.3	2.6	4.4	15	4.4	3.0	2.0	1.3
12	e1.05	1.3	2.4	4.1	2.3	2.7	4.3	12	3.7	2.8	3.6	1.2
13	e1.05	3.4	2.7	2.5	2.4	2.4	4.1	9.9	11	3.8	2.3	1.2
14	e1.05	2.0	2.9	6.4	2.8	2.5	4.0	8.5	5.0	3.0	1.8	2.5
15	e1.05	1.6	2.3	3.6	3.2	2.7	8.2	7.8	8.2	2.6	1.9	2.1
16	e.99	1.7	2.0	2.8	2.9	2.4	9.0	24	12	5.2	1.7	2.7
17	e1.01	6.0	2.0	2.5	2.1	2.3	5.2	23	5.7	3.8	1.5	3.4
18	e1.0	2.4	2.2	2.5	2.0	3.7	4.8	11	4.6	3.0	1.4	1.8
19	e1.0	1.9	2.3	2.5	1.9	3.1	4.5	9.4	4.0	2.8	1.5	25
20	e.99	42	2.3	2.5	1.9	2.6	4.2	8.2	4.2	6.3	1.6	35
21	2.2	9.4	2.6	2.1	18	5.5	4.0	7.3	4.1	3.7	1.4	8.7
22	3.1	5.8	2.1	2.2	6.8	3.5	3.8	6.5	4.1	3.3	1.3	4.7
23	1.4	4.2	2.7	2.3	4.3	3.0	3.7	9.2	5.0	2.9	1.5	4.6
24	1.8	3.3	5.3	2.3	3.3	9.6	3.5	11	27	2.5	1.6	3.5
25	1.4	3.0	3.8	2.3	3.4	7.0	3.5	6.6	6.5	2.4	1.5	2.9
26	1.3	2.8	2.5	2.9	2.8	4.8	3.3	5.8	5.4	2.3	1.5	6.0
27	1.3	3.0	2.3	2.4	2.8	4.2	3.2	6.0	4.8	2.6	1.5	3.2
28	1.3	13	3.1	2.3	2.6	3.8	3.1	5.2	4.9	2.9	1.6	2.8
29	1.3	4.7	2.7	2.3	---	3.6	3.0	4.7	4.3	2.1	2.0	2.6
30	1.2	3.7	2.2	2.9	---	11	3.2	4.6	3.9	2.1	2.0	2.5
31	1.2	---	2.1	2.4	---	14	---	4.4	---	2.2	1.6	---
MEAN	1.26	4.55	2.68	2.74	3.19	3.97	5.01	10.8	6.28	3.55	1.74	4.39
MAX	3.1	42	5.3	6.4	18	14	9.0	29	27	8.7	3.6	35
MIN	.99	1.3	2.0	2.1	1.9	2.3	3.0	3.3	3.1	2.1	1.3	1.2
IN.	.67	2.33	1.42	1.45	1.53	2.10	2.56	5.70	3.21	1.88	.92	2.25

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
MEAN	1.78	3.05	4.47	4.66	4.98	5.65	6.59	5.40	3.38	2.79	1.58	1.81
MAX	4.05	8.37	10.6	12.4	8.46	9.30	15.0	10.8	6.45	12.1	3.48	4.58
(WY)	1980	1973	1984	1979	1984	1978	1983	1989	1975	1984	1975	1975
MIN	.62	.93	.43	.08	2.03	2.09	1.72	2.30	1.49	.90	.38	.16
(WY)	1981	1981	1981	1981	1980	1985	1985	1985	1985	1980	1980	1980

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	4.18	3.84
HIGHEST ANNUAL MEAN		7.07
LOWEST ANNUAL MEAN		1.74
HIGHEST DAILY MEAN	42	125
LOWEST DAILY MEAN	.99	.03
INSTANTANEOUS PEAK FLOW	189	2000a
INSTANTANEOUS PEAK STAGE	1.76	3.91
INSTANTANEOUS LOW FLOW	---	---
ANNUAL RUNOFF (INCHES)	26.03	23.91
10 PERCENTILE	7.7	7.0
50 PERCENTILE	2.6	2.3
95 PERCENTILE	1.2	.54

a From rating curve extended above 20 ft³/s on basis of slope-area measurement of peak flow

e Estimated

01399670 SOUTH BRANCH ROCKAWAY CREEK AT WHITEHOUSE STATION, NJ

LOCATION.--Lat 40°37'10", long 74°46'30", Hunterdon County, Hydrologic Unit 02030105, on right bank 1,700 ft upstream from bridge on U.S. Route 22, 0.4 mi northeast of Whitehouse Station, and 0.8 mi upstream from mouth.

DRAINAGE AREA.--12.3 mi².

PERIOD OF RECORD.--October 1986 to current year. March 1977 to September 1986, water-stage recorder 1,700 ft downstream, at datum 8.07 ft lower (sta. 01399690).

REVISED RECORDS.--WDR NJ-88-1: 1987.

GAGE.--Water-stage recorder. Datum of gage is 121.5 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good except those below 5.0 ft³/s, which are fair. Releases from Round Valley Reservoir enter stream directly above station (see Raritan River basin, reservoirs in). Several measurements of water temperature were made during the year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.4	17	23	9.2	12	13	68	13	21	14	8.9	4.5
2	6.9	15	19	9.6	11	12	38	148	20	13	23	4.5
3	9.8	8.8	17	9.5	13	11	38	35	18	12	28	3.9
4	4.8	8.1	15	7.9	11	11	37	25	19	12	27	3.6
5	4.5	20	14	6.9	9.8	12	42	37	17	50	7.2	3.8
6	4.2	32	13	7.8	9.8	20	54	145	25	23	6.8	3.9
7	4.2	13	13	8.2	9.7	14	39	53	79	15	29	4.0
8	4.4	10	12	14	8.8	12	31	36	56	49	28	3.8
9	4.1	9.7	11	14	7.6	12	29	31	60	15	24	3.8
10	4.1	9.6	10	9.8	7.7	15	25	250	84	13	28	3.9
11	4.0	9.1	9.5	9.3	8.1	16	21	102	34	12	7.9	3.9
12	3.7	7.8	7.7	21	8.1	17	20	58	27	11	25	3.5
13	3.9	28	8.7	22	7.7	14	19	49	87	23	12	3.4
14	4.6	19	8.8	12	13	13	18	40	43	14	29	5.1
15	4.9	12	11	48	17	15	35	38	47	11	28	6.4
16	4.7	11	14	24	20	13	67	164	52	22	7.4	7.1
17	4.8	76	7.8	16	11	12	29	134	36	23	6.4	16
18	5.0	25	7.3	14	9.8	19	24	58	28	13	5.8	5.5
19	5.1	17	10	13	9.5	19	22	45	23	12	6.8	57
20	5.9	312	7.8	12	9.4	13	19	39	21	57	9.2	577
21	12	83	9.6	9.8	104	38	18	35	20	22	7.0	118
22	47	36	8.7	8.9	61	21	17	31	19	15	7.6	44
23	11	28	10	9.3	34	16	15	37	18	13	8.6	36
24	12	23	23	9.3	23	64	15	71	156	11	6.5	26
25	9.4	19	25	9.2	17	59	14	38	38	11	5.3	19
26	7.8	17	13	11	17	29	14	31	28	11	5.1	43
27	7.3	17	11	14	17	23	13	34	22	23	4.8	23
28	7.0	132	16	10	15	20	12	28	22	29	5.1	17
29	7.0	36	16	10	---	18	12	24	25	8.3	5.4	16
30	6.6	27	11	19	---	56	13	23	16	8.3	6.9	14
31	6.4	---	10	15	---	167	---	23	---	27	4.9	---
MEAN	7.50	35.9	12.7	13.3	17.9	25.6	27.3	60.5	38.7	19.1	13.4	36.0
MAX	47	312	25	48	104	167	68	250	156	57	29	577
MIN	3.7	7.8	7.3	6.9	7.6	11	12	13	16	8.3	4.8	3.4

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	32.7	31.3	34.0	36.3	29.9	32.4	36.2	28.5	20.5	26.7	34.8	35.6
MEAN	115	64.0	91.6	93.3	51.1	55.0	85.0	60.5	38.7	80.5	127	146
MAX (WY)	1981	1981	1981	1981	1979	1978	1983	1989	1989	1984	1980	1980
MIN (WY)	7.15	6.58	12.7	8.31	16.7	10.2	3.80	11.9	9.57	7.33	5.49	4.19
	1982	1982	1989	1985	1985	1985	1985	1977	1981	1983	1983	1983

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	25.6	32.2
HIGHEST ANNUAL MEAN		55.2
LOWEST ANNUAL MEAN		14.3
HIGHEST DAILY MEAN	577	600
LOWEST DAILY MEAN	3.4	1.4
INSTANTANEOUS PEAK FLOW	1200	2190
INSTANTANEOUS PEAK STAGE	7.55	15.89a
INSTANTANEOUS LOW FLOW	3.1	.18
10 PERCENTILE	49	81
50 PERCENTILE	15	17
95 PERCENTILE	3.9	4.2

a Site and datum then in use

RARITAN RIVER BASIN

01399700 ROCKAWAY CREEK AT WHITEHOUSE, NJ

LOCATION---Lat 40°37'49", long 74°44'11", Hunterdon County, Hydrologic Unit 02030105, on right bank at bridge on Lamington Road, 1.4 mi northeast of Whitehouse, and 1.8 mi upstream from mouth.

DRAINAGE AREA---37.1 mi².

PERIOD OF RECORD---Water years 1977 to current year.

PERIOD OF DAILY RECORD---

SPECIFIC CONDUCTANCE: April 1977 to September 1978.

WATER TEMPERATURES: April 1977 to September 1978.

SEDIMENT ANALYSES: October 1976 to September 1978.

COOPERATION---Field data and samples for laboratory analyses provided by New Jersey Department of Environmental Protection, Division of Water Resources. Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988										
11...	1200	20E	263	8.3	12.0	10.1	95	<0.7	390	240
FEB 1989										
23...	1230	105E	205	7.2	3.5	12.4	94	E1.7	260	130
APR										
12...	1300	68E	191	9.0	10.0	14.4	127	<1.0	20	46
JUN										
20...	1130	58E	196	7.3	19.0	9.3	101	2.8	1100	920
JUL										
31...	1330	96E	176	7.6	17.0	8.8	91	E1.4	790	920
AUG										
24...	1330	24.5E	223	8.4	21.0	8.5	96	<1.1	9200	>2400

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988									
11...	100	24	9.9	11	1.8	76	22	15	0.1
FEB 1989									
23...	63	16	5.6	13	2.2	35	26	17	0.1
APR									
12...	65	16	6.1	8.7	1.2	42	20	12	0.1
JUN									
20...	73	18	6.8	8.2	1.5	53	17	11	0.1
JUL									
31...	65	16	6.1	7.5	1.4	49	16	10	0.1
AUG									
24...	82	20	7.9	9.6	2.7	66	18	12	0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOROUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988									
11...	13	142	0.010	1.82	<0.05	0.16	2.0	0.14	2.4
FEB 1989									
23...	12	113	0.021	2.46	0.10	0.69	3.2	0.46	4.9
APR									
12...	13	102	0.011	1.33	0.07	0.20	1.5	0.07	1.8
JUN									
20...	16	110	0.010	1.41	0.14	0.51	1.9	0.08	3.1
JUL									
31...	5.7	92	0.023	1.56	<0.05	0.27	1.8	0.07	2.7
AUG									
24...	15	125	0.015	2.54	0.05	0.47	3.0	0.13	2.5

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

RARITAN RIVER BASIN

01399780 LAMINGTON (BLACK) RIVER AT BURNT MILLS, NJ

LOCATION---Lat 40°38'04", long 74°41'13", Somerset County, Hydrologic Unit 02030105, at bridge on Burnt Mills Road in Burnt Mills, 1,400 ft upstream from mouth, and 2.4 mi southwest of Greater Cross Roads.

DRAINAGE AREA---100 mi².

PERIOD OF RECORD---Water years 1964, 1976 to current year.

COOPERATION---Field data and samples for laboratory analyses provided by New Jersey Department of Environmental Protection, Division of Water Resources. Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
NOV 1988 03...	1100	59E	260	7.0	5.0	12.5	98	E2.2	330	540
JAN 1989 26...	1115	70E	250	8.3	0.0	13.2	91	<0.8	230	94
APR 04...	1045	295E	180	7.2	8.0	11.8	101	E2.2	490	49
MAY 16...	1030	900E	154	7.3	15.0	9.2	92	2.3	5400	>2400
JUL 18...	1230	111E	220	7.5	20.0	9.3	102	E1.3	270	240
AUG 02...	1200	64E	215	7.2	19.5	8.8	96	3.9	790	>2400

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
NOV 1988 03...	81	19	8.2	13	2.7	60	24	22	0.1
JAN 1989 26...	79	19	7.6	13	1.7	54	22	21	0.1
APR 04...	57	14	5.3	11	1.3	37	19	16	0.1
MAY 16...	49	12	4.6	9.4	2.2	33	15	13	0.1
JUL 18...	74	18	7.0	11	1.6	56	14	17	0.1
AUG 02...	90	22	8.5	13	1.6	67	14	20	0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV 1988 03...	13	138	0.012	1.12	0.05	0.34	1.5	--	3.9
JAN 1989 26...	12	129	0.011	1.53	0.15	0.21	1.7	0.07	1.6
APR 04...	11	100	0.005	0.98	0.06	0.24	1.2	0.05	3.1
MAY 16...	8.2	84	0.025	0.79	0.12	0.71	1.5	0.23	7.8
JUL 18...	14	116	0.013	1.11	<0.05	0.36	1.5	0.10	3.9
AUG 02...	13	132	0.039	1.21	>0.05	0.37	1.6	0.10	2.9

RARITAN RIVER BASIN

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01399780 LAMINGTON (BLACK) RIVER AT BURNT MILLS, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SULFIDE TOTAL (MG/L AS S)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE)	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)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
NOV 1988 03...	1100	<0.5	<10	<1	<10	90	2	1	2

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	PHENOLS TOTAL (UG/L)
NOV 1988 03...	190	<5	30	<0.10	6	<1	90	1

RARITAN RIVER BASIN

01400000 NORTH BRANCH RARITAN RIVER NEAR RARITAN, NJ

LOCATION.--Lat 40°34'10", long 74°40'45", Somerset County, Hydrologic Unit 02030105, on right bank, 400 ft upstream from U.S. Highway 202, 1.4 mi upstream from confluence with South Branch, and 2.7 mi west of Raritan.

DRAINAGE AREA.--190 mi².

PERIOD OF RECORD.--June 1923 to current year. Monthly discharge only for June 1923, published in WSP 1302. Prior to October 1943, published as "at Milltown".

REVISED RECORDS.--WSP 1552: 1924-26, 1928-35. WDR NJ-79-1: 1971-78(P).

GAGE.--Water-stage recorder. Concrete control since Sept. 1, 1936. Datum of gage is 50.43 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 17, 1936, nonrecording gage at site 30 ft downstream at same datum.

REMARKS.--Records fair above 5,000 ft³/s and good below. Releases from Round Valley Reservoir enter basin upstream of gage. Several measurements of water temperature were made during the year. New Jersey Water Supply Authority gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	67	151	358	145	190	215	1390	219	310	221	108	72
2	74	214	301	143	177	196	645	2720	277	202	111	71
3	127	130	268	141	193	187	613	733	252	186	135	65
4	87	111	237	e152	e180	183	570	477	240	175	116	60
5	73	135	218	e150	e155	185	717	490	225	579	97	58
6	68	337	202	e149	e143	271	871	2720	289	393	89	62
7	66	156	195	e148	e135	227	663	1050	815	252	103	62
8	71	123	183	180	e125	189	538	772	1020	557	107	61
9	73	115	169	274	e115	202	483	644	734	245	94	58
10	72	111	157	168	e105	211	421	2410	1300	205	92	58
11	68	109	e152	147	e101	235	369	1940	475	196	111	57
12	66	97	e147	283	e105	256	339	1030	346	168	228	55
13	65	264	e142	406	104	223	318	943	1140	221	166	52
14	64	283	e138	206	170	205	325	724	536	198	137	64
15	64	150	e133	691	224	222	443	658	571	155	133	122
16	63	125	e129	389	322	218	1160	2570	828	208	125	77
17	62	846	e125	254	188	191	529	2380	508	344	109	136
18	65	344	e122	218	153	232	431	1160	388	186	97	80
19	62	210	e119	207	145	373	389	932	329	161	97	477
20	62	3680	118	196	137	229	339	783	291	439	109	4510
21	85	2000	136	154	1520	540	313	669	291	264	102	1830
22	484	587	144	144	1160	388	291	566	313	192	115	515
23	157	444	144	192	601	274	265	609	474	171	119	477
24	123	372	317	175	397	634	252	1310	1140	148	113	373
25	125	312	472	142	306	1070	245	693	496	136	90	273
26	99	266	220	142	286	482	237	548	407	132	80	550
27	90	247	175	197	270	389	223	535	350	130	75	334
28	87	2190	200	161	241	353	211	472	313	148	73	233
29	84	617	274	148	---	319	207	388	309	112	78	204
30	79	411	181	251	---	555	271	353	246	101	122	181
31	74	---	161	245	---	1940	---	336	---	118	84	---
MEAN	93.7	505	195	213	284	368	469	1027	507	224	110	374
MAX	484	3680	472	691	1520	1940	1390	2720	1300	579	228	4510
MIN	62	97	118	141	101	183	207	219	225	101	73	52

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	163	285	345	373	436	513	475	342	222	186	190	174
MEAN	163	285	345	373	436	513	475	342	222	186	190	174
MAX	826	824	994	1416	948	1272	1368	1027	1270	1291	1068	672
(WY)	1956	1973	1984	1979	1925	1936	1983	1989	1972	1984	1942	1975
MIN	26.6	46.1	73.1	79.4	109	163	117	84.1	46.4	25.5	22.3	14.8
(WY)	1931	1965	1966	1940	1934	1981	1985	1926	1965	1966	1932	1964

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	364		308	
HIGHEST ANNUAL MEAN			605	1984
LOWEST ANNUAL MEAN			119	1965
HIGHEST DAILY MEAN	4510	Sep 20	15300	Jul 7 1984
LOWEST DAILY MEAN	52	Sep 13	7.5	Sep 26 1964
INSTANTANEOUS PEAK FLOW	8200	Nov 20	28600a	Aug 28 1971
INSTANTANEOUS PEAK STAGE	9.32	Nov 20	15.47b	Aug 28 1971
INSTANTANEOUS LOW FLOW	---		3c	Nov 28 1930
10 PERCENTILE	721		619	
50 PERCENTILE	210		184	
95 PERCENTILE	65		41	

a From rating curve extended above 15,000 ft³/s

b From high-water mark in gage house

c Result of freezeup

e Estimated

RARITAN RIVER BASIN

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01400120 RARITAN RIVER AT RARITAN, NJ

LOCATION.--Lat 40°33'52", long 74°38'10", Somerset County, Hydrologic Unit 02030105, at bridge on South Branch-Raritan Road in Raritan, 1.7 mi upstream from Peters Brook, 3.5 mi northeast of South Branch, and 3.6 mi southeast of North Branch.

DRAINAGE AREA.--474 mi².

PERIOD OF RECORD.--Water years 1977 to current year.

COOPERATION.--Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988 11...	1100	200E	259	8.7	12.0	11.2	105	1.8	<20	20
FEB 1989 02...	1200	450E	234	8.3	5.5	14.1	111	1.1	280	<2
APR 11...	1000	890E	220	7.8	8.5	12.0	101	1.5	20	<20
JUN 05...	0930	600E	227	8.0	22.0	8.3	95	3.4	--	--
JUL 10...	1030	585E	202	7.7	24.0	7.8	92	1.2	1100	170
AUG 09...	1000	330E	217	8.1	21.0	8.6	96	0.9	330	270

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988 11...	96	23	9.4	14	1.8	70	24	20	0.1
FEB 1989 02...	79	19	7.6	15	1.7	50	25	23	0.1
APR 11...	70	17	6.7	12	1.4	44	21	19	0.1
JUN 05...	83	20	8.0	12	1.6	57	20	19	0.1
JUL 10...	71	17	6.9	11	1.9	50	16	15	0.1
AUG 09...	86	21	8.2	12	1.7	60	18	15	0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988 11...	4.5	139	0.010	0.71	<0.05	0.30	1.0	0.07	2.3
FEB 1989 02...	7.7	129	0.017	1.40	0.22	0.25	1.7	0.04	2.3
APR 11...	9.7	113	0.009	1.23	<0.05	0.26	1.5	0.05	2.3
JUN 05...	9.1	124	0.025	1.19	<0.05	0.50	1.7	0.11	3.3
JUL 10...	11	109	0.013	1.18	0.07	0.57	1.7	0.10	3.8
AUG 09...	8.1	120	0.018	0.95	<0.05	0.22	1.2	0.08	2.7

RARITAN RIVER BASIN

01400120 RARITAN RIVER AT RARITAN, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SULFIDE TOTAL (MG/L AS S)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE)	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)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1988 11...	1100	<0.5	<10	<1	<10	<10	<1	2	4
JUN 1989 05...	0930	<0.5	10	<1	<10	30	<1	<1	5

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	PHENOLS TOTAL (UG/L)
OCT 1988 11...	200	<5	10	<0.10	<1	<1	<10	<1
JUN 1989 05...	340	7	40	<0.10	5	<1	10	<1

01400300 PETERS BROOK NEAR RARITAN, NJ

LOCATION.--Lat 40°35'37", Long 74°37'51", Somerset County, Hydrologic Unit 02030105, on left bank 12 ft upstream from bridge on Garretson Road, 1.5 mi north of Raritan, and 2.5 mi from mouth.

DRAINAGE AREA.--4.19 mi².

PERIOD OF RECORDS.--May 1978 to current year.

REVISED RECORD.--WDR NJ-79-1: 1978(P).

GAGE.--Water-stage recorder. Datum of gage is 68.71 ft above National Geodetic Vertical Datum of 1929 (levels by Somerset County).

REMARKS.--Records fair. Several measurements of water temperature were made during the year. Recording rain-gage and gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.76	11	3.4	1.8	2.6	2.9	13	4.8	3.1	2.0	1.7	1.4
2	3.2	3.0	2.9	1.8	2.2	2.7	5.9	159	2.9	2.0	1.7	1.4
3	1.7	1.3	2.7	1.8	3.3	2.6	7.3	12	2.8	1.9	2.6	1.3
4	.91	1.1	2.3	1.6	2.2	2.5	6.5	8.4	2.9	1.8	1.7	1.3
5	.82	6.5	2.1	1.3	1.9	2.8	8.9	18	2.6	36	1.9	1.3
6	.80	3.0	2.0	1.4	1.8	5.8	22	106	13	3.9	1.6	1.3
7	.76	1.4	2.1	1.4	1.8	4.1	8.0	11	59	3.5	1.7	1.3
8	1.2	1.1	2.0	6.8	1.6	3.2	6.8	6.4	11	e24	1.6	1.3
9	.85	1.3	1.9	3.4	1.4	3.8	5.1	4.9	67	2.6	1.5	1.3
10	.81	1.3	1.8	2.1	1.3	5.0	3.7	127	35	2.2	1.5	1.3
11	.78	1.2	1.7	1.8	1.4	5.4	3.4	24	5.5	2.1	4.6	1.4
12	.80	.94	1.5	16	1.3	5.1	2.9	12	4.0	2.2	9.6	1.4
13	.83	11	1.6	6.3	1.3	3.6	3.0	10	51	5.7	2.6	1.4
14	.80	2.4	1.6	2.7	4.6	3.3	2.8	6.3	11	2.5	1.9	8.4
15	.81	1.5	1.7	25	9.8	3.4	23	4.7	13	2.0	4.6	3.1
16	.81	1.1	1.6	5.1	8.7	3.0	19	110	9.5	12	2.3	3.0
17	.81	34	1.5	2.9	2.6	2.6	5.6	63	5.0	8.1	1.7	4.4
18	.81	2.8	1.5	2.4	1.9	7.2	4.0	11	3.5	2.6	1.6	1.8
19	.81	1.6	1.5	2.3	1.7	4.9	3.6	7.7	3.0	2.3	1.6	68
20	.76	204	1.5	2.1	1.7	3.2	3.0	6.1	2.8	3.5	1.5	117
21	20	16	2.8	1.7	84	18	2.8	5.0	2.6	2.3	1.8	22
22	18	5.3	1.9	1.5	24	5.1	2.6	4.2	2.8	2.1	1.8	6.8
23	1.7	3.8	4.5	1.5	9.2	3.5	2.4	31	3.5	1.9	4.1	6.3
24	2.4	3.2	14	1.5	4.9	35	2.3	20	4.6	1.9	1.8	3.3
25	1.3	2.9	7.4	1.5	3.5	16	2.3	6.9	2.5	1.8	1.5	2.3
26	1.0	2.6	2.9	1.8	3.6	5.5	2.3	5.2	2.3	1.8	1.5	22
27	.96	5.0	2.2	2.5	4.2	3.9	2.1	6.4	2.2	1.8	1.5	3.9
28	.93	119	6.2	1.7	3.3	3.4	2.1	4.4	2.4	2.0	1.5	2.7
29	.95	7.5	3.9	1.6	---	3.1	3.0	3.7	2.9	1.7	1.7	2.2
30	1.0	4.4	2.3	11	---	30	24	3.5	2.1	1.7	1.7	1.9
31	.93	---	2.0	4.0	---	47	---	3.3	---	1.8	1.4	---
MEAN	2.23	15.4	2.87	3.88	6.85	7.99	6.78	26.0	11.2	4.64	2.25	9.88
MAX	20	204	14	25	84	47	24	159	67	36	9.6	117
MIN	.76	.94	1.5	1.3	1.3	2.5	2.1	3.3	2.1	1.7	1.4	1.3
IN.	.61	4.10	.79	1.07	1.70	2.20	1.81	7.16	2.98	1.28	.62	2.63

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
MEAN	2.57	6.94	7.31	9.21	9.84	8.20	10.1	8.41	3.69	4.58	3.21	3.71
MAX	4.96	15.8	23.7	41.2	17.7	18.9	25.3	26.0	11.2	11.8	11.8	9.88
(WY)	1980	1987	1984	1979	1982	1980	1983	1989	1989	1984	1978	1989
MIN	.59	.56	.49	.24	1.39	1.37	.57	1.21	.82	.28	.04	.24
(WY)	1987	1979	1981	1981	1980	1985	1985	1986	1988	1983	1980	1984

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	8.31	6.45
HIGHEST ANNUAL MEAN	9.37	1984
LOWEST ANNUAL MEAN	3.51	1985
HIGHEST DAILY MEAN	204	Nov 20
LOWEST DAILY MEAN	.76	Oct 1
INSTANTANEOUS PEAK FLOW	928	May 6
INSTANTANEOUS PEAK STAGE	7.23	May 6
INSTANTANEOUS LOW FLOW	.70	Oct 1
ANNUAL RUNOFF (INCHES)	26.93	.00
10 PERCENTILE	17	12
50 PERCENTILE	2.4	1.1
95 PERCENTILE	.89	.09

e Estimated

RARITAN RIVER BASIN

01400350 MACS BROOK AT SOMERVILLE, NJ

LOCATION---Lat 40°34'26", long 74°37'06", Somerset County, Hydrologic Unit 02030105, on left upstream wingwall of culvert under access road from U.S. Highway 22 west to U.S. Highways 202 and 206, 1,200 ft upstream from Peters Brook, and 0.4 mi north of Somerville.

DRAINAGE AREA--0.77 mi².

PERIOD OF RECORD---June 1982 to current year.

GAGE---Water-stage recorder and crest-stage gage. Datum of gage is 58.37 ft above National Geodetic Vertical Datum of 1929.

REMARKS---Records poor. Several measurements of water temperature were made during the year.

COOPERATION---Gage-height record collected in cooperation with Somerset County.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.16	e3.1	1.0	.44	.89	.68	3.4	1.8	.65	.38	.23	.30
2	1.0	e.74	.82	.38	.68	.55	1.5	23	.56	.37	.20	.31
3	.49	e.27	.70	.37	1.2	.55	2.1	2.8	.52	.35	.65	.24
4	.33	e.25	.59	.32	.64	.47	2.0	1.3	.63	.31	.23	.20
5	.28	e1.6	.54	.31	.48	.63	3.6	4.1	.46	6.7	.29	.20
6	.18	e.66	.46	.31	.54	1.5	6.7	17	2.2	1.2	.21	.19
7	.16	e.30	.46	.33	.46	1.2	2.6	3.0	7.9	1.4	.23	.16
8	.49	e.26	.38	1.6	.37	1.2	2.3	1.5	2.5	4.0	.19	.16
9	.19	e.33	.35	.88	.31	1.3	1.7	1.1	21	.59	.16	.16
10	.16	e.32	.31	.48	.31	1.4	1.3	19	11	.43	.16	.15
11	.18	e.29	.31	.44	.32	1.4	1.2	7.8	1.5	.36	1.7	.13
12	.15	e.22	.31	3.8	.31	1.3	1.1	4.4	.96	.31	3.5	.13
13	.11	e2.8	.31	1.8	.31	.88	1.4	3.7	13	2.1	.96	.12
14	.10	e.57	.34	.93	1.5	.95	1.1	1.9	3.7	.60	.43	2.3
15	.10	e.35	.38	6.5	2.9	1.0	5.9	1.6	4.4	.37	1.6	.99
16	.09	e.26	.38	1.7	2.5	.83	5.0	16	3.5	4.9	.63	1.1
17	e.10	e8.7	.38	1.0	.95	.70	1.9	12	1.8	3.4	.36	1.3
18	e.12	e.71	.38	.75	.68	2.3	1.4	2.9	1.2	.72	.31	.31
19	e.12	e.36	.35	.69	.56	1.4	1.4	1.8	1.0	.47	.31	e53
20	e.12	e67	.33	.63	.50	1.1	1.2	1.5	.85	1.2	.30	e55
21	e5.4	e4.4	.88	.48	15	5.0	1.2	1.4	.80	.53	.46	e13
22	e4.6	e1.2	.42	.46	6.7	1.5	.93	1.2	.66	.44	.32	e8.4
23	e.51	e.94	1.2	.46	2.4	1.1	.86	5.5	1.2	.38	1.2	e7.9
24	e.67	e.64	3.6	.44	1.2	8.2	.71	5.3	1.5	.35	.44	e4.1
25	e.34	e.68	2.1	.38	.80	4.4	.70	1.7	.77	.31	.30	e1.9
26	e.21	e.66	.89	.62	1.1	1.6	.65	1.3	.61	.30	.26	e34
27	e.19	e1.1	.59	.73	1.1	1.3	.57	1.7	.51	.41	.25	e2.3
28	e.18	e9.5	1.4	.46	.85	1.2	.52	1.1	.73	.46	.25	e1.7
29	e.20	2.3	.94	.38	---	1.1	.99	.89	.61	.27	2.4	e1.2
30	e.21	1.3	.60	3.1	---	3.6	5.9	.84	.42	.25	5.0	e.56
31	e.20	---	.49	1.3	---	9.1	---	.70	---	.26	.55	---
MEAN	.56	3.73	.72	1.05	1.63	1.92	2.06	4.83	2.90	1.10	.78	6.38
MAX	5.4	.67	3.6	6.5	15	9.1	6.7	23	21	6.7	5.0	.55
MIN	.09	.22	.31	.31	.31	.47	.52	.70	.42	.25	.16	.12
IN.	.84	5.40	1.07	1.57	2.20	2.87	2.99	7.24	4.21	1.65	1.16	9.25

e Estimated

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	MAX	MIN	WY
1988	.41	.87	.05	1987
1986	2.14	4.09	.49	1985
1984	1.61	4.33	.47	1986
1986	1.48	3.12	.44	1985
1988	2.15	2.94	1.09	1987
1983	2.08	4.26	.41	1985
1983	2.98	6.51	.19	1986
1989	2.12	4.83	.22	1988
1989	1.03	2.90	.25	1989
1987	1.56	3.41	.06	1983
1987	.77	2.08	.07	1983
1983	1.46	6.38	.04	1983

SUMMARY STATISTICS

FOR 1989 WATER YEAR

AVERAGE FLOW	2.29
HIGHEST ANNUAL MEAN	
LOWEST ANNUAL MEAN	
HIGHEST DAILY MEAN	67
LOWEST DAILY MEAN	.09
INSTANTANEOUS PEAK FLOW	190
INSTANTANEOUS PEAK STAGE	---
INSTANTANEOUS LOW FLOW	.09
ANNUAL RUNOFF (INCHES)	40.38
10 PERCENTILE	4.4
50 PERCENTILE	.63
95 PERCENTILE	.16

FOR PERIOD OF RECORD

1.68	
2.29	1989
.92	1985
.97	Apr 16 1986
.00	Jul 28 1983
.549	Apr 16 1986
4.66	Apr 16 1986
.00	Many days
29.57	
2.7	
.32	
.03	

e Estimated

RARITAN RIVER BASIN

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01400500 RARITAN RIVER AT MANVILLE, NJ

LOCATION.--Lat 40°33'18", Long 74°35'02", Somerset County, Hydrologic Unit 02030105, on left bank at downstream side of bridge on North Main Street (Finderne Avenue) at Manville, and 1.4 mi upstream from Millstone River.

DRAINAGE AREA.--490 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1903 to March 1907 (published as "at Finderne"), August 1908 to April 1915 (gage heights only, published in WSP 521), August 1921 to current year. Monthly discharge only for some periods, published in WSP 1302.

REVISED RECORDS.--WSP 1552: 1904, 1906, 1922, 1923(M), 1924-25, 1926-29(M), 1930, 1932-33(M), 1924-54. WDR NJ-75-1: 1964(M), 1969(M), 1970(P), 1971(P), 1972(P), 1973(P).

GAGE.--Water-stage recorder. Datum of gage is 20.61 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 15, 1923, nonrecording gage on downstream side of highway bridge at same site and datum. From Oct. 1, 1952 to Sept. 30, 1966, water-stage recorder at station at Bound Brook, above Calco Dam (station 01403000) used as auxiliary gage when stage is above 5.0 ft. In Oct. 1, 1966, water-stage recorder at station at Bound Brook, used as auxiliary gage, was moved downstream to present site (station 01403060). Between June 9, 1978 and June 7, 1979, gage temporarily relocated at site 1.4 mi downstream, just upstream of Millstone River, because of reconstruction of highway bridge.

REMARKS.--No estimated daily discharges. Records fair. Records given herein represent flow at gage only. Slight diurnal fluctuation at low flow. Flow regulated by Spruce Run and Round Valley Reservoirs (see Raritan River basin, reservoirs in). Diversion to Round Valley Reservoir since March 1966 (see Raritan River basin, diversions). Prior to Sept. 1, 1986, water diverted 1,500 ft upstream from station by Johns-Manville Corporation and returned to river 600 ft downstream from Millstone River (see Raritan River basin, diversions). Several measurements of water temperature were made during the year. National Weather Service and New Jersey Water Supply Authority operate gage-height telemeters at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	225	327	1010	340	506	578	3840	534	835	643	470	351
2	240	524	828	352	467	521	2090	5250	761	577	429	348
3	353	362	718	346	474	484	1800	2870	698	528	433	339
4	244	296	640	334	501	468	1620	1570	662	488	405	330
5	185	320	552	382	404	466	2000	1260	629	1730	379	323
6	201	890	521	505	378	631	2340	5590	752	1930	352	383
7	213	541	490	401	388	655	2130	3310	1510	958	401	437
8	226	384	528	461	354	563	1700	2300	3440	1780	377	454
9	212	334	496	738	404	495	1270	1980	2230	875	356	447
10	204	311	471	518	441	518	1120	4310	5760	617	331	445
11	202	301	455	409	448	582	955	6960	2120	550	411	441
12	194	271	489	549	412	715	838	3060	1110	468	762	483
13	200	427	776	1130	339	694	783	2620	2970	584	672	483
14	205	811	673	568	449	607	775	2240	2440	646	522	554
15	205	452	401	1690	498	632	890	2100	2160	467	530	562
16	208	362	499	1230	789	642	2860	4290	2670	516	758	518
17	207	1920	445	744	522	537	1680	6650	2290	988	453	762
18	208	1320	426	615	396	540	1150	3640	1500	593	384	585
19	199	691	391	556	365	969	1010	2580	982	467	364	1770
20	198	4920	372	521	360	647	865	2330	796	961	384	9550
21	288	7720	322	454	2170	1230	776	2080	787	884	373	11300
22	1570	2120	385	384	3740	1220	723	1680	907	673	395	3030
23	554	1390	381	448	2090	793	667	1510	1260	604	418	2140
24	358	1050	535	412	1290	1130	598	3260	3840	547	402	2060
25	355	853	1220	363	922	3280	563	2420	2640	521	366	1350
26	294	722	573	352	796	1830	538	1810	1660	507	329	2140
27	254	657	419	444	738	1200	518	1450	1090	511	328	2030
28	239	5320	390	408	663	1010	483	1410	931	612	319	1200
29	231	2170	688	364	---	905	466	1040	1060	486	334	1050
30	217	1280	461	541	---	901	742	916	766	439	578	947
31	207	---	395	670	---	3790	---	890	---	456	365	---
MEAN	287	1302	547	556	761	943	1260	2707	1709	729	432	1560
MAX	1570	7720	1220	1690	3740	3790	3840	6960	5760	1930	762	11300
MIN	185	271	322	334	339	466	466	534	629	439	319	323

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

MEAN	432	682	872	961	1089	1355	1167	798	521	474	465	472
MAX	2433	2460	2383	3856	2406	3260	3507	2707	2581	2542	2552	2068
(WY)	1904	1933	1984	1979	1925	1936	1983	1989	1972	1975	1955	1971
MIN	64.8	87.5	148	188	265	354	259	212	88.8	65.1	50.5	51.2
(WY)	1942	1932	1966	1966	1934	1981	1985	1926	1965	1955	1932	1941

RARITAN RIVER BASIN

01400500 RARITAN RIVER AT MANVILLE, NJ--Continued

WATER-DISCHARGE RECORDS--Continued

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	1064		772	Unadjusted
HIGHEST ANNUAL MEAN			1365	1984
LOWEST ANNUAL MEAN			309	1965
HIGHEST DAILY MEAN	11300	Sep 21	21600	Sep 22 1938
LOWEST DAILY MEAN	185	Oct 5	17 ^a	Sep 19 1964
INSTANTANEOUS PEAK FLOW	16200	Sep 21	36300 ^b	Aug 28 1971
INSTANTANEOUS PEAK STAGE	16.24	Sep 21	23.8 ^c	Aug 28 1971
INSTANTANEOUS LOW FLOW	175	Oct 5	17	Sep 19 1964
10 PERCENTILE	2270		1590	
50 PERCENTILE	581		435	
95 PERCENTILE	229		96	

a Does not include water diverted to Johns-Manville plant

b From rating curve extended above 14,000 ft³/s on basis of slope-area measurements at gage heights 14.9 and 20.42 ft

c From floodmark (backwater from Millstone River)

01400500 RARITAN RIVER AT MANVILLE, NJ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1923-25, 1959, 1962-73, 1976 to current year.

COOPERATION.--Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, EC BROTH (MPN)	STREP- TOCOCCI FECAL (MPN)
OCT 1988										
11...	1330	205	261	8.6	13.0	11.6	111	1.3	50	50
FEB 1989										
01...	1100	505	220	8.2	4.5	13.8	107	--	79	23
APR										
12...	1100	843	228	7.8	10.0	13.4	117	1.1	--	--
JUN										
06...	1030	652	226	8.1	21.5	8.6	98	3.4	920	540
JUL										
24...	1045	536	230	7.9	24.5	8.4	100	1.1	170	280
AUG										
10...	1045	312	221	8.0	21.5	9.1	102	1.6	540	240

DATE	HARD- NESS TOTAL (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)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT 1988									
11...	97	23	9.5	14	1.8	70	25	21	0.1
FEB 1989									
01...	81	20	7.5	15	1.9	50	25	24	0.1
APR									
12...	74	18	7.1	13	1.5	47	23	20	0.1
JUN									
06...	82	20	7.8	12	1.4	57	20	19	0.1
JUL									
24...	79	19	7.6	11	1.7	56	18	16	0.1
AUG									
10...	87	21	8.4	12	1.5	61	20	16	0.3

DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHOROUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988									
11...	4.2	141	0.008	0.65	<0.05	0.26	0.91	0.06	2.8
FEB 1989									
01...	8.7	132	0.015	1.42	<0.05	0.33	1.7	0.06	3.0
APR									
12...	9.3	120	--	--	--	--	--	--	2.6
JUN									
06...	8.1	123	0.017	1.01	0.07	0.54	1.5	0.09	3.9
JUL									
24...	11	118	0.016	1.12	0.21	0.52	1.6	0.10	3.1
AUG									
10...	7.5	123	<0.003	0.86	E0.08	E0.36	--	0.07	3.2

RARITAN RIVER BASIN

01400500 RARITAN RIVER AT MANVILLE, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SULFIDE TOTAL (MG/L AS S)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE)	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)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1988 11...	1330	<0.5	<10	<1	<10	<10	<1	1	3
DATE		IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	PHENOLS TOTAL (UG/L)
OCT 1988 11...		100	<5	10	<0.10	<1	<1	<10	<1

01400540 MILLSTONE RIVER NEAR MANALAPAN, NJ

LOCATION.--Lat 40°15'44", long 74°25'13", Middlesex County, Hydrologic Unit 02030105, at bridge on State Route 33, 1.3 mi west of Manalapan, 5.5 mi east of Hightstown, and 8.4 mi above Rocky Brook.

DRAINAGE AREA.--7.37 mi².

PERIOD OF RECORD.--Water years 1960 to 1964, June 1981 to current year.

COOPERATION.--Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PERCENT SATURATION)	OXYGEN DEMAND, BIO-CHEMICAL, 5 DAY (MG/L)	COLIFORM, FECAL, EC BROTH (MPN)	STREPTOCOCCI FECAL (MPN)
OCT 1988 19...	0930	2.3E	76	8.4	11.0	9.2	84	E1.3	20	33
FEB 1989 07...	0930	7.2E	--	7.5	1.5	13.8	99	<0.9	50	79
APR 11...	1030	15 E	124	9.5	10.5	12.4	111	<0.8	20	13
JUN 07...	1230	22 E	138	6.6	17.5	8.2	87	E1.9	5400	>2400
JUL 27...	1230	9.8E	130	7.2	23.0	7.6	90	E1.5	1100	540
AUG 02...	1130	8.4E	118	7.0	19.0	8.2	89	<0.8	230	>2400

DATE	HARDNESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS Cl)	FLUORIDE, DIS-SOLVED (MG/L AS F)
OCT 1988 19...	29	5.6	3.6	5.2	2.5	14	11	11	0.1
FEB 1989 07...	31	6.8	3.5	11	2.5	4.0	21	21	0.1
APR 11...	32	7.0	3.5	7.3	3.1	2.0	18	14	0.2
JUN 07...	33	7.0	3.7	6.3	2.3	9.0	16	12	0.1
JUL 27...	32	6.9	3.6	6.4	2.8	11	14	12	0.2
AUG 02...	33	7.1	3.8	6.2	2.7	12	13	12	0.2

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	PHOSPHOROUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988 19...	9.0	56	0.008	1.50	<0.05	0.19	1.7	0.04	2.7
FEB 1989 07...	9.9	78	0.010	2.45	0.12	0.24	2.7	0.06	1.2
APR 11...	8.3	63	0.004	2.11	<0.05	0.31	2.4	0.07	2.0
JUN 07...	8.8	62	0.015	1.30	0.18	0.63	1.9	0.15	5.3
JUL 27...	9.8	62	0.028	1.54	0.07	0.60	2.1	0.12	5.5
AUG 02...	9.4	62	0.035	2.43	<0.05	0.56	3.0	0.22	4.2

RARITAN RIVER BASIN

01400540 MILLSTONE RIVER NEAR MANALAPAN, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SULFIDE TOTAL (MG/L AS S)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE)	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)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1988 19...	0930	<0.5	20	1	<10	<10	<1	1	4
JUN 1989 07...	1230	<0.5	40	1	<10	30	<1	2	3

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	PHENOLS TOTAL (UG/L)
OCT 1988 19...	1300	<5	40	<0.10	12	<1	20	1
JUN 1989 07...	3700	2	110	<0.10	7	<1	20	<1

RARITAN RIVER BASIN

191

01400650 MILLSTONE RIVER AT GROVERS MILL, NJ

LOCATION.--Lat 40°19'19", long 74°36'31", Mercer County, Hydrologic Unit 02030105, at bridge on Millstone Road in Grovers Mill, 0.3 mi upstream from Cranbury Brook, and 2.7 mi north of Dutch Neck.

DRAINAGE AREA.--43.4 mi².

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

COOPERATION.--Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988 05...	1100	21E	202	6.6	16.0	3.2	33	--	330	130
JAN 1989 24...	1200	31E	257	7.0	3.5	10.7	81	8.7	70	46
MAR 27...	1200	140E	150	6.9	10.5	9.2	82	2.4	20	70
MAY 24...	1330	160E	175	6.9	17.0	6.5	68	3.9	>2400	>2400
JUL 06...	1215	930E	--	7.0	20.5	5.0	--	3.0	2200	240
AUG 08...	1200	66E	155	7.1	22.0	5.5	64	5.2	5400	5400

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988 05...	49	12	4.5	15	4.4	15	22	21	0.3
JAN 1989 24...	53	13	5.1	21	4.0	18	29	35	<0.1
MAR 27...	40	9.6	4.0	13	3.2	8.0	27	22	0.2
MAY 24...	35	8.7	3.3	10	2.9	9.0	18	16	0.2
JUL 06...	56	14	5.2	11	1.4	40	12	16	0.1
AUG 08...	40	9.8	3.8	10	3.6	14	15	16	0.3

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CON-STI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988 05...	6.2	94	0.068	--	--	--	--	--	3.8
JAN 1989 24...	10	128	0.025	3.03	2.25	2.6	5.6	0.24	3.9
MAR 27...	7.2	91	0.013	1.63	0.55	0.90	2.5	0.25	5.9
MAY 24...	5.6	70	0.052	1.58	0.64	1.3	2.9	0.34	7.3
JUL 06...	17	101	0.072	0.78	0.28	1.4	2.1	0.95	7.1
AUG 08...	7.4	74	0.200	2.17	0.67	1.3	3.5	0.38	6.9

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

RARITAN RIVER BASIN

193

01400730 MILLSTONE RIVER AT PLAINSBORO, NJ

LOCATION.--Lat 40°19'27", long 74°36'51", Mercer County, Hydrologic Unit 02030105, on left bank 30 ft upstream from bridge on AMTRAK railroad, 100 ft downstream from Cranbury Road, 0.2 mi upstream from Bear Brook, and 0.9 mi southwest of Plainsboro.

DRAINAGE AREA.--65.8 mi².

PERIOD OF RECORD.--May 1964 to September 1975, March 1987 to September 1989 (discontinued).

GAGE.--Water-stage recorder and crest-stage gage. Operated as a crest-stage gage water years 1976-86. Datum of gage is 53.41 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Occasional diversion for irrigation above station. Several measurements of water temperature were made during the year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	32	209	46	72	79	e245	62	67	50	79	64
2	15	77	88	44	60	71	e194	134	62	48	81	51
3	30	98	68	43	57	e70	e142	239	53	44	72	42
4	31	91	69	41	63	e66	e122	177	67	43	107	37
5	27	64	66	34	65	e63	e110	99	66	706	108	34
6	23	59	61	32	58	e73	e148	250	92	1730	69	32
7	21	50	57	32	53	e93	e185	340	152	708	62	32
8	26	49	55	41	51	e94	e187	223	236	323	93	31
9	30	44	52	75	45	e83	e177	105	212	203	113	30
10	30	38	49	93	38	e79	e157	165	1040	121	79	30
11	27	43	46	76	35	e81	e114	651	749	87	80	30
12	22	89	41	71	34	e97	e94	534	290	69	143	28
13	20	29	36	109	33	e106	e85	321	165	81	190	26
14	17	43	34	108	50	e97	e82	203	142	115	235	29
15	15	39	35	125	73	e89	e80	111	126	115	232	50
16	17	39	38	155	136	e84	e173	306	151	91	156	53
17	18	68	38	128	138	e78	e263	920	155	283	131	83
18	17	110	34	87	89	e72	183	540	153	434	105	74
19	17	105	31	71	63	e99	112	300	133	270	86	180
20	17	155	33	63	54	e103	89	173	98	191	97	1140
21	47	434	38	56	116	e119	73	111	75	256	72	1490
22	120	317	49	47	495	e136	63	88	84	504	62	543
23	90	186	53	41	559	e114	57	86	169	283	66	266
24	105	99	67	41	294	e117	51	215	216	131	69	164
25	74	73	81	41	159	e249	49	275	101	89	63	105
26	45	62	78	43	103	e294	48	219	74	75	53	155
27	34	59	66	46	95	e214	46	128	65	70	47	209
28	29	260	56	46	90	e135	44	138	59	106	43	214
29	26	508	61	45	---	e106	42	176	66	126	43	142
30	29	358	58	51	---	e94	55	107	56	85	58	97
31	57	---	52	68	---	e172	---	77	---	74	63	---
MEAN	35.2	123	58.0	64.5	113	111	116	241	172	242	95.4	182
MAX	120	508	209	155	559	294	263	920	1040	1730	235	1490
MIN	14	29	31	32	33	63	42	62	53	43	43	26
IN.	.62	2.08	1.02	1.13	1.80	1.94	1.96	4.22	2.93	4.25	1.67	3.09

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	57.0	84.4	127	109	132	129	119	102	79.5	105	80.7	76.4
MEAN	57.0	84.4	127	109	132	129	119	102	79.5	105	80.7	76.4
MAX	116	222	265	205	209	187	232	241	172	371	260	183
(WY)	1972	1973	1974	1975	1973	1968	1973	1989	1989	1975	1971	1971
MIN	17.5	20.2	32.9	32.2	81.0	86.9	38.0	37.3	18.4	7.32	3.65	16.5
(WY)	1971	1966	1966	1966	1968	1966	1966	1965	1965	1966	1966	1970

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	129	100
HIGHEST ANNUAL MEAN	146	1975
LOWEST ANNUAL MEAN	49.0	1966
HIGHEST DAILY MEAN	1730	Jul 21 1975
LOWEST DAILY MEAN	14	Aug 10 1966
INSTANTANEOUS PEAK FLOW	2450	Jul 6
INSTANTANEOUS PEAK STAGE	6.73	Jul 6
INSTANTANEOUS LOW FLOW	14	Oct 1
ANNUAL RUNOFF (INCHES)	26.70	20.71
10 PERCENTILE	251	200
50 PERCENTILE	78	65
95 PERCENTILE	28	16

e Estimated

01401000 STONY BROOK AT PRINCETON, NJ

LOCATION.--Lat 40°19'59", Long 74°40'56", Mercer County, Hydrologic Unit 02030105, on right bank 10 ft downstream of bridge on U.S. Highway 206, 1.6 mi southwest of Princeton, and 4.0 mi upstream from Carnegie Lake.

DRAINAGE AREA.--44.5 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1953 to current year.

GAGE.--Water-stage recorder, crest-stage gage, and concrete control. Datum of gage is 62.23 ft above National Geodetic Vertical Datum of 1929 (levels from New Jersey Geological Survey bench mark).

REMARKS.--No estimated daily discharges. Records good. Since July 1959 some regulation by several small reservoirs, combined capacity, 49,800,000 gal. Several measurements of water temperature, other than those published, were made during the year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	11	87	26	47	53	318	28	27	20	21	5.0
2	2.0	30	66	25	39	47	117	638	22	16	16	4.6
3	4.3	17	53	25	43	42	101	170	18	14	15	3.9
4	4.5	12	47	18	52	39	100	84	40	17	13	3.4
5	3.0	10	41	14	39	39	86	82	26	594	11	3.2
6	2.5	30	37	17	36	76	252	852	70	263	8.6	3.3
7	2.2	21	36	19	37	72	157	268	532	131	15	3.2
8	3.2	13	33	26	31	54	148	125	543	113	14	3.0
9	2.5	10	28	75	23	51	100	90	707	53	8.8	2.9
10	2.4	8.9	25	42	24	47	78	804	1240	37	7.2	2.7
11	2.2	8.7	21	32	23	65	60	609	162	29	16	2.7
12	2.0	7.8	15	80	21	113	51	243	88	22	75	2.7
13	1.7	15	17	165	20	96	47	181	141	46	101	2.4
14	1.6	43	17	60	48	75	43	113	85	49	63	5.6
15	1.4	22	19	307	111	80	65	91	70	27	243	31
16	1.5	17	16	140	209	64	393	456	98	57	187	15
17	1.4	229	14	81	87	48	111	552	68	177	43	26
18	1.4	107	12	59	55	65	79	189	47	58	26	15
19	1.6	41	13	51	47	150	69	104	36	37	22	437
20	1.5	669	12	45	44	65	55	77	30	137	22	1360
21	9.2	635	17	35	572	173	46	59	84	272	18	785
22	131	172	25	26	569	112	42	47	184	84	15	141
23	29	83	23	30	242	68	36	66	143	56	20	89
24	14	58	43	29	117	223	33	367	209	41	14	59
25	10	46	101	29	77	428	30	122	78	32	9.2	42
26	7.2	39	44	28	69	132	30	68	48	30	7.5	129
27	6.0	35	31	33	68	91	27	60	36	28	6.6	80
28	5.6	595	32	29	66	75	24	62	31	28	6.2	43
29	5.5	568	53	26	---	64	22	39	45	19	6.0	35
30	4.9	164	36	56	---	59	29	33	27	15	6.4	30
31	4.5	---	30	85	---	520	---	30	---	20	6.3	---
MEAN	8.76	124	33.7	55.3	101	106	91.6	216	164	81.4	33.6	112
MAX	131	669	101	307	572	520	393	852	1240	594	243	1360
MIN	1.4	7.8	12	14	20	39	22	28	18	14	6.0	2.4
IN.	.23	3.11	.87	1.43	2.35	2.75	2.30	5.61	4.13	2.11	.87	2.81

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	23.9	54.7	87.3	87.9	110	128	106	63.0	31.3	32.9	31.8	30.4
MAX	120	212	244	306	203	231	295	216	164	216	240	158	
(WY)	1980	1973	1987	1979	1971	1980	1983	1989	1989	1975	1955	1975	
MIN	1.00	1.50	4.56	3.22	19.7	31.3	20.9	8.95	2.67	.55	.14	1.31	
(WY)	1958	1966	1966	1981	1978	1985	1985	1963	1957	1957	1966	1970	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	93.6	65.3
HIGHEST ANNUAL MEAN		109
LOWEST ANNUAL MEAN		28.5
HIGHEST DAILY MEAN	1360	3410
LOWEST DAILY MEAN	1.4	.00
INSTANTANEOUS PEAK FLOW	3120	8960 ^a
INSTANTANEOUS PEAK STAGE	8.81	14.26
INSTANTANEOUS LOW FLOW	1.3	.00
ANNUAL RUNOFF (INCHES)	28.56	19.94
10 PERCENTILE	200	141
50 PERCENTILE	40	23
95 PERCENTILE	2.6	1.0

^a From rating extended above 4,000 ft³/s on basis of contracted-opening measurement of peak flow

01401000 STONY BROOK AT PRINCETON, NJ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1956-75, 1978 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURES: October 1956 to September 1962, October 1963 to September 1964, October 1965 to June 1970.
SUSPENDED-SEDIMENT DISCHARGE: January 1956 to June 1970.

COOPERATION.--Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, EC BROTH (MPN)	STREP- TOCOCCI FECAL (MPN)
OCT 1988 05...	1100	3.2	299	7.9	13.5	7.5	72	6.0	50	330
JAN 1989 19...	1145	48	214	7.6	3.0	13.9	103	1.8	170	350
APR 11...	1200	59	188	8.8	12.5	15.6	146	1.5	110	130
JUN 05...	1400	24	188	8.3	23.5	10.9	129	--	--	--
JUL 11...	1230	29	177	8.2	26.5	9.8	122	1.5	79	540
AUG 09...	1230	8.6	223	8.9	22.0	13.3	151	2.1	<200	<200

DATE	HARD- NESS TOTAL (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)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT 1988 05...	92	21	9.6	23	3.1	77	29	30	0.1
JAN 1989 19...	62	14	6.5	14	1.9	32	26	22	0.1
APR 11...	57	13	6.0	12	1.5	32	26	17	0.1
JUN 05...	64	15	6.5	12	2.2	45	22	15	0.1
JUL 11...	60	14	6.1	12	2.4	44	20	13	0.1
AUG 09...	76	18	7.5	16	2.3	58	24	19	0.1

DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRITE (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHOROUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988 05...	0.62	163	<0.003	<0.05	0.07	0.43	--	0.05	4.4
JAN 1989 19...	12	116	0.009	0.96	0.06	0.39	1.3	0.07	3.9
APR 11...	10	105	0.004	0.65	<0.05	0.35	1.0	0.06	3.4
JUN 05...	4.5	104	0.013	0.54	0.14	0.34	0.88	0.08	4.2
JUL 11...	11	105	0.013	0.65	<0.05	0.49	1.1	0.07	4.1
AUG 09...	4.5	126	0.006	0.14	0.06	0.45	0.59	0.08	4.0

[illegible]

01401301 MILLSTONE RIVER AT CARNEGIE LAKE, AT PRINCETON, N.J.

LOCATION.--Lat 40°22'11", long 74°37'15", Middlesex County, Hydrologic Unit 02030105, at right end of Carnegie Lake dam, 2.5 mi northeast of Princeton.

DRAINAGE AREA.--159 mi².

PERIOD OF RECORD.--October 1972 to September 1974, October 1987 to September 1989 (discontinued). Operated as crest-stage gage water years 1977-87. October and November 1924, May 1925, and January 1926 to September 1965, gage height only, published as "Lake Carnegie at Princeton" in NJ Special Reports 9, 12, 14, 16, 20, 31, and 37.

GAGE.--Water-stage recorder above dam. Datum of gage is 50.00 ft above National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1950, staff gage at left end of dam at datum 2.56 ft higher.

REMARKS.--Records fair. Water diverted to and from Delaware and Raritan Canal 2.0 mi upstream at aqueduct (see Raritan River basin diversions). Several measurements of water temperature were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 28, 1971 reached a stage of 7.09 ft, discharge, 13,000 ft³/s, from rating curve extended above 4,000 ft³/s on basis of computation of peak flow over dam. Flood of July 21, 1938 reached a stage of 6.76 ft, present datum.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43	75	302	114	157	207	830	148	269	126	218	91
2	43	123	196	111	136	183	417	907	282	110	231	78
3	53	128	153	107	133	164	318	849	253	103	228	72
4	51	121	142	103	147	154	307	403	278	98	250	66
5	50	106	128	84	139	153	296	297	266	1780	267	63
6	44	97	118	85	128	216	571	1810	329	3640	233	60
7	42	101	113	84	122	280	655	1250	643	1420	224	59
8	46	86	107	99	117	244	512	671	1860	611	258	57
9	50	e69	102	159	110	235	470	411	990	368	263	56
10	48	e63	102	175	102	224	365	1160	4130	250	195	56
11	45	e65	101	146	98	228	281	2650	1940	188	159	56
12	42	e71	79	154	96	285	242	1530	773	160	292	53
13	41	e83	73	286	91	295	224	891	527	180	346	51
14	40	e127	73	221	118	253	212	602	427	230	364	61
15	40	e104	73	371	178	236	226	413	373	196	329	108
16	40	e77	76	345	329	226	842	1230	333	195	542	111
17	40	e322	73	253	262	194	602	2860	308	567	225	146
18	41	e440	73	200	195	166	410	1560	284	610	184	122
19	40	e272	73	168	158	322	307	834	246	382	151	550
20	40	e789	71	151	143	262	281	518	201	370	153	3810
21	50	e1910	77	133	478	321	246	373	164	782	137	5000
22	254	e997	93	115	1570	373	205	319	275	669	118	1180
23	179	e372	105	112	1030	282	185	376	381	439	115	493
24	130	215	127	109	488	327	171	1010	506	251	124	311
25	111	169	194	107	304	1210	158	770	300	191	112	228
26	81	145	172	109	242	730	153	552	201	161	100	323
27	67	139	140	112	236	451	143	421	161	153	85	380
28	59	1190	127	112	228	299	130	380	149	210	78	299
29	56	881	146	110	---	251	128	407	178	255	77	248
30	53	468	138	122	---	241	143	356	151	215	91	198
31	62	---	121	179	---	857	---	314	---	193	90	---
MEAN	63.9	327	118	153	269	318	334	847	573	487	201	480
MAX	254	1910	302	371	1570	1210	842	2860	4130	3640	542	5000
MIN	40	63	71	84	91	153	128	148	149	98	77	51
IN.	.46	2.29	.86	1.11	1.76	2.31	2.35	6.15	4.02	3.53	1.46	3.37

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	106	230	356	262	335	319	437	299	196	205	127	144
MEAN	106	230	356	262	335	319	437	299	196	205	127	144
MAX	147	618	748	433	535	734	962	847	573	487	203	479
(WY)	1984	1973	1974	1973	1973	1983	1983	1989	1989	1989	1973	1989
MIN	35.2	67.2	118	121	175	124	110	74.7	69.9	45.0	38.5	35.6
(WY)	1983	1982	1989	1985	1987	1985	1985	1982	1974	1974	1982	1982

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	347	266
HIGHEST ANNUAL MEAN		372
LOWEST ANNUAL MEAN		162
HIGHEST DAILY MEAN	5000	5780
LOWEST DAILY MEAN	40	17
INSTANTANEOUS PEAK FLOW	7720	8100
INSTANTANEOUS PEAK STAGE	5.30	5.40
INSTANTANEOUS LOW FLOW	40	---
ANNUAL RUNOFF (INCHES)	29.67	22.74
10 PERCENTILE	771	551
50 PERCENTILE	193	147
95 PERCENTILE	50	32

e Estimated

01401440 MILLSTONE RIVER AT KINGSTON, NJ

LOCATION.--Lat 40°22'24", long 74°37'15", Middlesex County, Hydrologic Unit 02030105, at bridge on Lincoln Highway in Kingston, 0.2 mi downstream from the outflow of Carnegie Lake, and 3.0 mi northwest of Plainsboro.

DRAINAGE AREA.--172 mi², includes 8.0 mi² which drains into Delaware and Raritan Canal.

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

COOPERATION.--Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988										
25...	1030	79E	211	7.6	11.0	10.0	91	5.7	80	80
JAN 1989										
25...	0930	150E	210	7.2	3.5	13.8	102	7.8	20	<20
APR										
06...	1100	570E	179	7.2	13.5	10.3	99	2.4	94	23
JUN										
08...	1300	920E	103	7.0	20.5	7.8	86	5.1	>24000	>24000
JUL										
11...	1030	150E	116	7.1	26.0	7.6	93	1.9	130	130
AUG										
02...	1400	110E	170	7.4	24.5	8.0	96	2.7	11	34

DATE	HARD-NESS TOTAL (MG/L AS CaCO ₃)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CaCO ₃)	SULFATE DIS-SOLVED (MG/L AS SO ₄)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988									
25...	59	14	5.8	13	3.8	31	24	22	0.2
JAN 1989									
25...	52	12	5.3	16	2.9	20	26	28	0.1
APR									
06...	47	11	4.8	13	2.2	21	26	20	0.1
JUN									
08...	34	8.1	3.3	5.9	2.4	20	14	7.8	0.1
JUL									
11...	36	8.5	3.5	7.1	3.1	18	14	10	0.1
AUG									
02...	46	11	4.6	9.8	3.3	25	17	15	0.2

DATE	SILICA, DIS-SOLVED (MG/L AS SiO ₂)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO ₂ +NO ₃ TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOROUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988									
25...	2.5	104	0.032	2.17	0.11	0.77	2.9	0.14	5.3
JAN 1989									
25...	9.0	111	0.025	0.14	0.46	0.91	1.0	0.11	3.8
APR									
06...	9.0	99	0.021	1.45	0.24	0.80	2.3	0.14	4.4
JUN									
08...	6.8	60	0.055	0.68	0.24	1.1	1.8	0.29	7.6
JUL									
11...	8.5	66	0.032	0.93	0.13	1.0	1.9	0.04	8.0
AUG									
02...	8.9	85	0.077	1.26	0.09	0.81	2.1	0.12	6.0

RARITAN RIVER BASIN

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01401440 MILLSTONE RIVER AT KINGSTON, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SULFIDE TOTAL (MG/L AS S)	NITRO- GEN, NH4 + ORG. TOT IN BOT MAT (MG/KG AS N)	CARBON, INOR- GANIC, TOT IN BOT MAT (G/KG AS C)	CARBON, INORG + ORGANIC TOT. IN BOT MAT (GM/KG AS C)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC IN BOT- TOM MA- TERIAL (UG/G AS AS)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM FM BOT- TOM MA- TERIAL (UG/G AS CD)
OCT 1988												
25...	1030	<0.5	--	--	--	<10	1	--	<10	70	<1	--
25...	1030	--	210	0.1	3.2	--	--	3	--	--	--	<10
DATE		CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	CHRO- MIUM, RECOV. FM BOT- TOM MA- TERIAL (UG/G)	COBALT, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, RECOV. FM BOT- TOM MA- TERIAL (UG/G)
OCT 1988												
25...		2	--	--	4	--	790	--	8	--	60	--
25...		--	5	<50	--	20	--	2400	--	20	--	110
DATE		MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY RECOV. FM BOT- TOM MA- TERIAL (UG/G AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	NICKEL, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS NI)	SELE- NIUM, TOTAL RECOV- ERABLE (UG/L AS SE)	SELE- NIUM, TOTAL IN BOT- TOM MA- TERIAL (UG/G)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS ZN)	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/L)	PCN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	
OCT 1988												
25...		<0.10	--	<1	--	<1	--	20	--	2	--	<1.0
25...		--	0.02	--	<100	--	<1	--	50	--	<10	<1.0
DATE		ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- AZINON, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDO- SULFAN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ETHION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
OCT 1988												
25...		--	--	--	--	--	--	--	--	--	--	--
25...		<0.1	14	4.0	<5.0	<2.0	<0.1	0.5	<0.1	<0.1	<0.1	<1.0
DATE		HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	MALA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA- THION, TOT. IN BOTTOM MATL. (UG/KG)	METHYL TRI- THION, TOT. IN BOTTOM MATL. (UG/KG)	MIREX, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PARA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PER- THANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TRI- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
OCT 1988												
25...		--	--	--	--	--	--	--	--	--	--	--
25...		0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.00	<10	<0.1

01401600 BEDEN BROOK NEAR ROCKY HILL, NJ

LOCATION---Lat 40°24'52", long 74°39'02", Somerset County, Hydrologic Unit 02030105, at bridge on U.S. Route 206 at State Route 533, 0.7 mi upstream from Pike Run, 1.2 mi northwest of Rocky Hill, and 4.6 mi north of Princeton.

DRAINAGE AREA---27.6 mi².

PERIOD OF RECORD---Water years 1959-63, 1976 to current year.

COOPERATION---Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988										
06...	1330	10E	344	7.8	11.0	8.1	72	2.8	1300	700
JAN 1989										
19...	0945	62E	190	7.4	3.0	13.0	96	1.3	170	80
APR										
13...	1400	88E	202	8.8	11.0	16.4	148	1.2	<20	170
MAY										
24...	1200	185E	92	7.2	15.0	9.3	93	2.0	5400	>24000
JUL										
10...	1300	24E	183	7.9	24.5	10.2	123	1.2	2400	630
AUG										
02...	1030	60E	240	7.6	21.0	10.8	122	1.2	200	800

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988									
06...	110	27	11	24	3.4	75	41	31	0.1
JAN 1989									
19...	57	13	6.0	11	1.6	28	27	16	0.1
APR									
13...	53	12	5.5	11	1.5	31	24	15	0.1
MAY									
24...	34	8.0	3.4	5.7	1.6	21	15	6.6	0.1
JUL									
10...	61	14	6.2	11	2.2	41	21	12	0.1
AUG									
02...	77	18	7.7	13	2.1	54	25	8.6	0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988									
06...	2.8	185	0.111	1.54	0.09	0.79	2.3	0.54	4.4
JAN 1989									
19...	12	103	0.014	1.86	<0.05	0.31	2.2	0.07	3.0
APR									
13...	11	99	0.017	1.22	0.09	0.22	1.4	0.10	2.1
MAY									
24...	11	64	0.026	0.65	0.13	0.76	1.4	0.13	6.9
JUL									
10...	14	105	0.011	1.40	<0.05	0.44	1.8	0.12	3.4
AUG									
02...	9.1	116	0.061	1.61	<0.05	0.39	2.0	0.16	3.3

01401650 PIKE RUN AT BELLE MEAD, NJ

LOCATION.--Lat 40°28'05", long 74°38'57", Somerset County, Hydrologic Unit 02030105, on right bank 20 ft upstream of bridge on Township Line Road, 0.7 mi east of Belle Mead, 0.8 mi upstream of Crusier Brook, and 1.0 mi downstream of bridge on U.S. Route 206.

DRAINAGE AREA.--5.36 mi².

PERIOD OF RECORD.--July 1980 to current year.

GAGE.--Water-stage recorder, crest-stage gage, and concrete parking-block control. Datum of gage is 58.85 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharge. Records fair. Several measurements of water temperature were made during the year. Recording rain-gage and gage-height telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1810, 13.5 ft, from floodmark, present datum, Aug. 28, 1971.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.65	10	7.9	3.2	5.8	2.9	26	3.9	3.4	3.1	1.3	.87
2	.77	6.2	5.9	3.2	4.8	2.6	12	112	3.0	2.8	1.1	.84
3	2.1	2.6	5.1	3.1	7.0	3.0	11	13	2.8	2.6	1.1	.68
4	.81	1.8	4.2	3.1	7.3	3.1	9.6	7.5	3.7	2.7	.98	.63
5	.71	4.6	3.6	2.5	5.1	1.3	12	11	2.6	65	.91	.66
6	.65	7.3	3.4	2.1	3.3	5.5	29	135	5.9	12	.83	.60
7	.58	2.9	3.3	2.2	3.4	8.7	14	17	39	5.5	1.3	.58
8	1.4	2.1	3.0	5.8	2.8	7.5	12	9.3	20	10	.98	.58
9	.99	1.7	2.8	6.4	3.6	5.0	8.6	7.1	125	3.3	.75	.58
10	.88	1.6	2.7	4.0	2.5	6.3	7.0	136	231	2.3	.67	.46
11	.71	1.5	2.6	3.4	1.9	9.4	6.0	42	13	1.8	4.6	.44
12	.67	1.3	2.3	15	2.0	9.9	5.3	16	7.4	1.5	9.4	.43
13	.74	8.3	2.1	13	2.1	6.7	4.9	14	23	4.0	7.0	.40
14	.73	5.3	2.1	6.5	7.5	5.7	4.6	8.8	21	2.5	3.5	4.1
15	.74	2.7	2.2	32	13	5.8	17	7.2	19	1.9	4.5	4.1
16	.89	2.1	2.4	13	21	4.6	36	77	31	4.8	3.5	1.7
17	.65	49	1.7	7.0	7.6	3.9	11	58	11	1.9	4.6	4.6
18	.64	8.4	1.7	5.2	5.2	5.8	7.8	14	7.0	3.4	1.4	1.2
19	.70	4.8	1.5	4.7	4.4	7.3	6.8	8.4	5.5	2.4	1.4	132
20	.74	260	1.5	4.1	3.9	4.3	5.7	6.6	4.7	4.9	1.4	209
21	9.2	51	2.9	3.8	94	17	5.1	5.6	5.2	3.9	1.1	73
22	25	15	3.0	3.5	41	8.1	4.5	4.7	5.3	2.8	1.3	10
23	3.1	11	3.6	1.9	16	5.6	3.9	15	5.4	2.2	1.1	10
24	2.2	10	9.7	2.2	5.7	39	3.6	38	8.0	1.6	.95	7.2
25	1.8	9.1	9.5	2.2	3.8	33	3.5	12	5.1	1.5	.81	5.1
26	1.4	9.0	4.7	2.8	2.3	9.5	3.3	7.0	4.4	1.4	.74	25
27	1.4	9.5	3.6	4.5	3.3	6.8	3.6	8.3	3.9	1.3	.66	7.3
28	1.4	144	6.9	3.3	3.1	6.0	3.0	6.2	4.2	3.1	.65	4.5
29	1.4	17	7.6	2.3	---	5.4	3.0	4.7	4.3	1.3	2.7	3.8
30	1.4	10	4.4	14	---	8.8	5.6	4.1	3.4	1.2	3.9	3.3
31	1.3	---	3.6	9.2	---	80	---	3.8	---	1.5	1.1	---
MEAN	2.14	22.3	3.92	6.10	10.1	10.6	9.51	26.2	20.9	5.46	2.05	17.1
MAX	25	260	9.7	32	94	80	36	136	231	65	9.4	209
MIN	.58	1.3	1.5	1.9	1.9	1.3	3.0	3.8	2.6	1.2	.65	.40
IN.	.46	4.65	.84	1.31	1.97	2.28	1.98	5.64	4.36	1.17	.44	3.56

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	2.82	10.8	10.7	9.51	14.4	11.4	16.0	10.4	6.10	8.16	2.54	3.55
	MAX	7.72	22.3	33.6	23.0	26.0	30.2	43.1	26.2	20.9	26.1	7.29	17.1
	(WY)	1988	1989	1984	1982	1982	1983	1983	1989	1989	1984	1986	1989
	MIN	.83	2.09	.74	.04	6.21	3.05	2.18	1.89	.81	.36	.16	.51
	(WY)	1987	1985	1981	1981	1987	1981	1985	1986	1986	1980	1980	1983

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	11.3	8.94
HIGHEST ANNUAL MEAN		14.3
LOWEST ANNUAL MEAN		3.79
HIGHEST DAILY MEAN	260	528
LOWEST DAILY MEAN	.40	.00
INSTANTANEOUS PEAK FLOW	1310	2010
INSTANTANEOUS PEAK STAGE	9.77	11.76
INSTANTANEOUS LOW FLOW	.33	.00
ANNUAL RUNOFF (INCHES)	28.63	22.66
10 PERCENTILE	18	17
50 PERCENTILE	4.0	2.2
95 PERCENTILE	.59	.13

01402000 MILLSTONE RIVER AT BLACKWELLS MILLS, NJ

LOCATION---Lat 40°28'30", long 74°34'34", Somerset County, Hydrologic Unit 02030105, on left bank 30 ft downstream from highway bridge at Blackwells Mills, and 0.3 mi downstream from Six Mile Run.

DRAINAGE AREA---258 mi².

PERIOD OF RECORD---June 1903 to December 1904 (gage heights only), August 1921 to current year. Monthly discharge only for some periods, published in WSP 1302. Published as "at Millstone" 1903-04.

REVISED RECORDS---WSP 1552: 1924-25(M), 1926.

GAGE---Water-stage recorder. Concrete control since Nov. 18, 1933. Datum of gage is 26.97 ft above National Geodetic Vertical Datum of 1929. June 27, 1903 to Dec. 31, 1904, nonrecording gage at bridge 2.0 mi downstream at Millstone at different datum. Aug. 4, 1921 to Aug. 16, 1928, nonrecording gage at present site and datum.

REMARKS---No estimated daily discharges. Records good except those above 1,200 ft³/s, which are fair. Inflow from and losses to Delaware and Raritan Canal above station. Flow slightly regulated by Carnegie Lake, capacity, 310,000,000 gal and several smaller reservoirs, combined capacity, 49,800,000 gal. Several measurements of water temperature were made during the year. National Weather Service and New Jersey Water Supply Authority operate gage-height telemeters at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	63	154	561	176	274	323	1500	206	305	163	175	111
2	63	235	383	166	230	290	719	1140	294	141	165	102
3	90	192	295	162	227	264	549	1650	271	128	173	94
4	81	165	250	145	247	246	522	618	376	119	147	87
5	74	152	230	124	224	241	456	455	307	1180	167	82
6	69	186	211	123	209	321	847	2310	383	4080	141	79
7	65	152	200	124	202	399	913	2720	704	2970	135	77
8	75	133	187	153	188	344	774	1120	2120	1140	153	76
9	76	118	175	262	167	316	648	619	1460	514	161	75
10	74	107	164	263	150	308	532	1450	5100	341	161	74
11	70	101	152	223	143	346	410	3920	4120	249	192	72
12	65	106	133	277	138	467	344	2790	1620	202	348	70
13	62	154	123	577	131	470	312	1560	891	226	474	68
14	60	211	121	384	213	400	299	881	701	289	467	78
15	60	168	123	794	326	385	313	614	592	242	538	165
16	58	137	120	740	639	342	1320	1680	698	278	757	142
17	60	564	116	472	476	302	889	3750	536	872	347	213
18	62	765	112	354	337	292	591	3060	421	731	251	161
19	63	436	109	303	271	512	459	1360	339	521	206	718
20	61	1460	108	264	240	393	378	706	286	488	207	3610
21	78	3870	123	222	977	548	325	525	244	1080	185	9710
22	546	1830	149	187	2540	596	286	426	332	721	158	4490
23	294	607	150	179	2140	433	259	449	461	604	147	1490
24	178	393	210	204	992	587	239	1350	577	355	162	605
25	149	300	336	166	549	1710	223	971	449	249	141	394
26	115	253	274	167	413	1120	213	658	276	207	123	714
27	94	234	213	178	390	674	203	529	226	197	107	697
28	83	2050	204	172	365	485	190	468	195	212	100	484
29	77	2260	277	162	---	395	178	439	218	203	108	385
30	73	972	231	231	---	355	215	407	200	191	135	278
31	77	---	199	332	---	1480	---	361	---	174	113	---
MEAN	100	615	201	267	478	495	504	1264	823	615	221	847
MAX	546	3870	561	794	2540	1710	1500	3920	5100	4080	757	9710
MIN	58	101	108	123	131	241	178	206	195	119	100	68
IN.	.45	2.66	.90	1.19	1.93	2.21	2.18	5.65	3.56	2.75	.99	3.66

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	183	337	453	492	583	677	538	359	234	249	213	226
MEAN	183	337	453	492	583	677	538	359	234	249	213	226
MAX	838	1113	1344	1743	1199	1383	1520	1264	823	1808	1267	1277
(WY)	1928	1973	1984	1979	1925	1936	1983	1989	1989	1975	1971	1938
MIN	42.6	51.2	67.0	62.9	105	158	103	82.8	45.5	19.3	17.3	20.2
(WY)	1942	1966	1966	1981	1934	1985	1985	1963	1963	1966	1981	1980

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	535	378
HIGHEST ANNUAL MEAN		690
LOWEST ANNUAL MEAN		165
HIGHEST DAILY MEAN	9710	17400
LOWEST DAILY MEAN	58	5.0
INSTANTANEOUS PEAK FLOW	11400	22200
INSTANTANEOUS PEAK STAGE	14.42	18.68a
INSTANTANEOUS LOW FLOW	58	5
ANNUAL RUNOFF (INCHES)	28.14	19.87
10 PERCENTILE	1100	813
50 PERCENTILE	266	199
95 PERCENTILE	72	42

a From high-water mark

01402540 MILLSTONE RIVER AT WESTON, NJ

LOCATION.--Lat 40°31'47", long 74°35'19", Somerset County, Hydrologic Unit 02030105, at bridge on Wilhouski Street in Weston, 50 ft upstream from Royce Brook, 0.8 mi southwest of Alma White College, and 1.9 mi north of Millstone.

DRAINAGE AREA.--271 mi², includes approximately 13 mi² which drains into Delaware and Raritan canal.

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

COOPERATION.--Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988										
24...	1345	190E	232	7.6	11.5	8.9	82	2.9	230	490
JAN 1989										
25...	1130	180E	250	7.4	3.0	13.1	96	2.0	<20	50
APR										
11...	1400	440E	206	7.1	10.0	10.1	89	2.1	490	<20
JUN										
08...	1000	2300E	132	7.1	20.0	6.9	76	--	>24000	>24000
JUL										
24...	1330	390E	150	7.1	23.0	7.0	80	1.4	330	700
AUG										
10...	1330	170E	213	7.3	22.5	6.0	68	1.4	460	80

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988									
24...	68	16	6.7	15	3.8	36	32	21	0.2
JAN 1989									
25...	66	16	6.4	18	2.7	33	31	27	0.1
APR									
11...	54	13	5.2	12	2.3	23	27	18	0.1
JUN									
08...	41	10	3.9	8.1	2.3	24	16	11	0.1
JUL									
24...	46	11	4.4	8.6	2.5	24	18	12	0.1
AUG									
10...	69	16	7.0	14	3.6	34	26	19	0.4

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988									
24...	3.7	120	0.019	2.34	<0.05	0.76	3.1	0.21	5.3
JAN 1989									
25...	9.4	130	0.040	1.90	0.75	1.2	3.1	0.23	3.8
APR									
11...	9.7	101	0.045	1.65	0.11	0.71	2.4	0.16	4.2
JUN									
08...	7.4	73	0.068	1.10	0.20	1.1	2.2	0.36	7.5
JUL									
24...	9.7	81	0.038	1.47	0.06	0.83	2.3	0.26	7.1
AUG									
10...	9.3	116	0.060	2.38	E0.09	E0.55	--	0.30	5.3

RARITAN RIVER BASIN

01402600 ROYCE BROOK TRIBUTARY NEAR BELLE MEAD, NJ

LOCATION.--Lat 40°29'56", long 74°39'05", Somerset County, Hydrologic Unit 02030105, on right bank 25 ft upstream from bridge on State Highway 514 (Amwell Road), 1,200 ft upstream from mouth, and 2.0 mi north of Belle Mead.

DRAINAGE AREA.--1.20 mi².

PERIOD OF RECORD.--October 1966 to September 1974, January 1980 to current year.

REVISED RECORDS.--WRD NJ-69: 1967, 1968. WDR NJ-85-1: 1980-84(P).

GAGE.--Water-stage recorder, crest-stage gage, and concrete control. Datum of gage is 66.98 ft above National Geodetic Vertical Datum of 1929. Prior to September 1974 at same site at datum 0.79 ft higher.

REMARKS.--No estimated daily discharges. Records fair. Some regulation from storm-water detention basin 542 ft upstream of gage since 1980. Several measurements of water temperature were made during the year. Recording rain-gage and gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.25	4.9	1.5	.70	.87	.60	5.4	1.2	.43	.33	.37	.35
2	1.3	2.0	1.2	.64	.72	.51	2.3	26	.37	.31	.37	.38
3	.54	.89	1.1	.60	1.2	.50	2.3	3.6	.43	.31	.69	.26
4	.32	.56	.89	.60	.83	.46	1.7	1.9	.87	.50	.31	.31
5	.29	3.3	.78	.33	.68	.53	3.9	4.0	.37	21	.38	.31
6	.20	3.5	.78	.43	.68	1.9	8.0	30	2.8	2.6	.38	.43
7	.18	2.0	.66	.37	.61	1.3	3.4	4.1	12	1.2	1.8	.31
8	.72	1.5	.56	1.9	.52	1.1	2.9	1.9	4.3	2.4	.40	.31
9	.40	1.3	.51	1.5	.42	1.0	1.8	1.4	45	.79	.37	.31
10	.38	1.2	.51	1.0	.37	1.6	1.3	33	18	.61	.37	.31
11	.35	1.1	.44	.81	.38	2.7	1.0	9.7	2.7	.47	3.4	.31
12	.21	.89	.31	4.3	.37	2.4	.89	3.8	1.6	.43	5.5	.31
13	.24	5.2	.21	2.3	.33	1.5	.78	2.5	12	2.5	2.2	.31
14	.18	2.6	.22	1.3	1.8	1.2	.72	1.6	3.5	.78	1.2	5.5
15	.20	1.7	.30	6.8	2.9	1.1	6.6	1.2	5.7	.53	1.1	1.9
16	.22	1.5	.19	2.0	3.3	.89	7.2	24	5.5	3.6	.79	1.9
17	.24	16	.06	1.3	1.2	.82	2.3	14	2.3	4.5	.61	2.9
18	.26	4.5	.00	1.1	.83	2.2	1.5	3.5	1.4	1.2	.51	.75
19	.22	2.8	.00	.88	.69	1.6	1.4	1.6	1.2	.87	.52	46
20	.19	63	.00	.79	.59	1.2	1.0	1.1	.90	3.0	.50	56
21	12	8.9	.56	.54	20	5.3	.85	.85	.79	1.3	.53	13
22	11	4.1	.58	.48	10	2.0	.70	.69	1.2	.84	.57	4.5
23	2.8	3.1	1.3	.44	3.6	1.3	.56	8.2	.67	.63	.68	4.7
24	2.7	2.5	2.6	.43	1.8	9.9	.50	7.8	1.4	.52	.33	2.5
25	1.7	2.1	1.8	.43	1.0	7.3	.47	2.4	.62	.42	.25	1.8
26	1.3	2.0	1.0	.52	1.0	2.4	.43	1.3	.56	.38	.25	9.0
27	.92	2.6	.80	.75	1.0	1.6	.39	2.4	.44	.70	.25	2.7
28	.92	34	1.7	.51	.74	1.3	.38	.97	.62	1.1	.25	1.5
29	.80	3.5	1.3	.45	---	1.0	.69	.71	.66	.31	.78	1.3
30	.90	2.2	.95	3.3	---	4.0	1.5	.60	.39	.31	2.9	1.2
31	.69	---	.82	1.3	---	14	---	.50	---	.48	.43	---
MEAN	1.37	6.18	.76	1.25	2.09	2.43	2.10	6.34	4.29	1.77	.94	5.38
MAX	12	63	2.6	6.8	20	14	8.0	33	45	21	5.5	56
MIN	.18	.56	.00	.33	.33	.46	.38	.50	.37	.31	.25	.26
IN.	1.32	5.75	.73	1.20	1.81	2.33	1.95	6.09	3.99	1.70	.90	5.00

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
MEAN	1.39	2.95	3.41	2.58	3.61	3.30	3.14	2.20	1.46	2.03	2.09	2.11													
MAX	3.40	7.55	8.85	6.25	7.37	7.06	8.25	6.34	5.00	7.17	9.71	12.5													
(WY)	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978													
MIN	.19	.57	.30	.03	.69	.98	.41	.42	.07	.02	.01	.00													
(WY)	1969	1974	1981	1981	1980	1985	1985	1986	1971	1968	1972	1972													

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	2.90		2.52
HIGHEST ANNUAL MEAN			3.86
LOWEST ANNUAL MEAN			1.52
HIGHEST DAILY MEAN	63	Nov 20	160
LOWEST DAILY MEAN	.00	Dec 18	.00
INSTANTANEOUS PEAK FLOW	392	Jun 9	1450
INSTANTANEOUS PEAK STAGE	5.16	Jun 9	7.80
INSTANTANEOUS LOW FLOW	.00	Dec 18	.00
ANNUAL RUNOFF (INCHES)	32.81		28.47
10 PERCENTILE	5.3		5.3
50 PERCENTILE	.89		.54
95 PERCENTILE	.21		.02

01403060 RARITAN RIVER BELOW CALCO DAM, AT BOUND BROOK, NJ

LOCATION.--Lat 40°33'05", long 74°32'54", Somerset County, Hydrologic Unit 02030105, on right bank 1,000 ft downstream from Calco Dam and Cuckold Brook, 1,400 ft upstream of bridge on Interstate 287, 1.2 mi downstream from Millstone River, and 1.2 mi southwest of Bound Brook.

DRAINAGE AREA.--785 mi² (includes 11 mi² which drains into the Delaware and Raritan Canal).

PERIOD OF RECORD.--September 1903 to March 1909, October 1944 to current year. Monthly discharge only for some periods, published in WSP 1302. Prior to October 1966 published as "Raritan River at Bound Brook" (station 01403000).

REVISED RECORDS.--WSP 1552: 1903-07, 1946(M), 1949, 1952(P).

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Sept. 12, 1903 to Mar. 31, 1909, nonrecording gages at highway bridge, 1.2 mi downstream at different datum. October 1944 to Sept. 30, 1966, water-stage recorder and concrete control at site 1,000 ft upstream at datum 18.06 ft higher.

REMARKS.--Records good, except for estimated daily discharges, which are fair. Water diverted 1.2 mi above station by Elizabethtown Water Co. for municipal supply (see Raritan River basin, diversions). Flow regulated by Spruce Run and Round Valley Reservoirs (see Raritan River basin, reservoirs in). Diversions to and releases from Round Valley Reservoir (see Raritan River basin, diversions and station 01399690). Slight diurnal fluctuations at low flow. Several measurements of water temperature were made during the year. New Jersey Water Supply Authority gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	181	414	1680	e540	735	852	5770	664	880	675	553	330
2	196	711	1290	e503	645	760	2600	6420	789	592	487	334
3	326	477	1080	e497	643	693	2060	5060	691	525	525	309
4	232	384	949	e598	688	653	1960	2070	766	488	440	288
5	155	405	e905	e341	564	645	2060	1600	707	2600	437	262
6	178	952	e840	e380	511	865	2910	8270	846	5280	394	306
7	185	632	e777	e458	514	985	2780	6370	1760	4010	442	365
8	206	446	e714	e572	460	785	2240	3270	5260	2750	426	399
9	201	375	639	953	446	761	1910	2180	3390	1380	408	387
10	189	332	602	715	451	783	1620	5520	10300	924	383	357
11	185	326	570	586	471	869	1300	11400	6090	752	540	335
12	166	293	399	775	449	1120	1120	6050	2970	610	1040	364
13	169	494	474	1660	374	1100	1020	4180	3830	746	1120	362
14	172	981	546	957	586	953	998	2800	2700	863	938	456
15	170	586	467	2310	763	950	1110	2260	2250	631	988	615
16	170	438	394	1970	1420	916	4190	5800	3050	759	1480	517
17	167	2370	344	1220	989	772	2450	10900	2330	1870	748	812
18	170	2040	313	959	683	759	1720	7130	1650	1300	557	591
19	169	1010	342	835	572	1410	1410	3890	1240	944	485	2260
20	167	5070	336	748	527	989	1170	2590	995	1160	508	12400
21	270	12100	384	632	3150	1570	1020	2040	946	1920	451	19400
22	1860	4180	448	487	6530	1750	937	1650	1120	1380	443	7640
23	806	2010	422	526	4180	1160	856	1580	1480	1190	456	3360
24	456	1470	691	506	2350	1570	761	4460	4080	828	455	2060
25	416	1160	1410	449	1420	5250	703	3060	2640	677	394	1470
26	322	985	847	443	1180	2900	666	1990	1410	608	334	2420
27	260	897	616	560	1070	1890	627	1670	1100	602	324	2230
28	233	7280	553	514	980	1460	580	1550	961	731	294	1520
29	221	4640	e942	461	---	1240	560	1230	1070	592	311	1260
30	209	2440	e721	708	---	1170	862	1090	828	545	632	1070
31	195	---	e605	963	---	5530	---	988	---	535	358	---
MEAN	290	1863	687	769	1191	1391	1666	3862	2271	1241	560	2149
MAX	1860	12100	1680	2310	6530	5530	5770	11400	10300	5280	1480	19400
MIN	155	293	313	341	374	645	560	664	691	488	294	262

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	636	1077	1471	1580	1760	2135	1796	1296	780	703	674	698
MEAN	636	1077	1471	1580	1760	2135	1796	1296	780	703	674	698
MAX	2953	3684	4172	5825	3232	3858	5326	3862	3883	4624	3576	3158
(WY)	1904	1973	1974	1979	1971	1978	1983	1989	1972	1975	1955	1975
MIN	113	138	178	179	485	454	230	339	117	84.7	69.9	76.1
(WY)	1958	1966	1966	1981	1980	1985	1985	1965	1965	1955	1957	1957

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	1492		1213	Unadjusted
HIGHEST ANNUAL MEAN			2046	1975
LOWEST ANNUAL MEAN			480	1985
HIGHEST DAILY MEAN	19400	Sep 21	34100	Aug 28 1971
LOWEST DAILY MEAN	155	Oct 5	37	Sep 6 1964
INSTANTANEOUS PEAK FLOW	23500	Sep 21	46100	Aug 28 1971
INSTANTANEOUS PEAK STAGE	30.22	Sep 21	37.47a	Aug 28 1971
INSTANTANEOUS LOW FLOW	135	Oct 5	---	
10 PERCENTILE	3260		2620	
50 PERCENTILE	795		638	
95 PERCENTILE	204		132	

a From floodmark

e Estimated

01403150 WEST BRANCH MIDDLE BROOK NEAR MARTINSVILLE, NJ

LOCATION---Lat 40°36'44", long 74°35'28", Somerset County, Hydrologic Unit 02030105, on left bank 150 ft upstream from bridge on Crim Road, 1.4 mi northwest of Martinsville, and 1.8 mi upstream from confluence with East Branch Middle Brook.

DRAINAGE AREA---1.99 mi².

PERIOD OF RECORD---June 1979 to current year.

GAGE---Water-stage recorder. Datum of gage is 240.48 ft above National Geodetic Vertical Datum of 1929 (levels by Somerset County).

REMARKS---Records fair. Several measurements of water temperature were made during the year. Recording rain-gage and gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.16	7.9	1.7	.71	1.6	1.1	8.3	3.6	1.0	.55	.35	.19
2	.79	1.9	1.3	.78	1.3	1.1	2.8	108	.85	.55	.35	.22
3	.38	.79	1.1	.75	2.0	1.0	4.1	6.3	.76	.55	.88	.19
4	.14	.56	1.0	.54	1.3	1.1	3.5	2.9	.74	.55	.35	.19
5	.17	4.1	.99	.39	1.0	1.3	7.4	15	.67	20	.35	.19
6	.23	2.2	.89	.45	1.0	2.3	19	80	6.5	1.1	.35	.19
7	.24	.95	.89	.48	.98	1.5	5.6	7.8	25	.97	.30	.20
8	.61	.65	.74	2.3	.77	1.3	4.6	3.6	4.1	5.7	.31	.20
9	.40	.56	.70	1.6	.62	1.4	3.5	2.8	61	.59	.31	.19
10	.37	.56	.62	.92	.58	1.8	2.7	95	27	.55	.32	.19
11	.40	.55	.55	.79	.59	2.5	2.3	27	2.3	.53	1.7	.18
12	.41	.46	.41	12	.56	2.8	2.1	11	1.3	.52	4.2	.16
13	.41	6.4	.43	3.3	.50	1.9	2.2	8.2	35	1.5	.67	.15
14	.41	1.6	.46	1.4	1.9	2.0	2.0	4.7	6.7	.56	.39	4.5
15	.43	.88	.48	19	6.0	2.1	19	3.8	9.8	.46	2.2	.61
16	.41	.70	.39	3.0	4.7	1.5	16	96	5.9	5.6	.58	.37
17	.41	26	.38	1.8	1.5	1.3	4.2	54	2.9	4.4	.33	.98
18	.41	2.4	.34	1.4	1.2	4.5	2.9	7.3	1.7	.69	.28	.21
19	.41	1.3	.35	1.3	1.0	2.3	2.5	4.3	1.2	.55	.28	52
20	.41	134	.37	1.2	.94	1.6	2.0	3.5	1.0	.96	.30	e115
21	12	11	.76	.83	55	14	1.8	2.8	.96	.61	.39	e20
22	12	1.8	.49	.66	20	2.8	1.7	2.3	.93	.55	.29	4.1
23	.71	1.1	1.4	.67	4.6	1.9	1.6	21	1.4	.52	1.4	3.7
24	.91	.78	9.9	.69	2.3	32	1.5	14	2.8	.46	.28	1.2
25	.51	.56	3.4	.63	1.6	14	1.4	3.4	.94	.44	.24	.63
26	.58	.44	1.3	.90	1.4	3.5	1.3	2.5	.82	.42	.24	14
27	.94	1.9	1.0	1.5	1.5	2.4	1.3	3.2	.74	.41	.24	1.3
28	1.2	97	3.6	.90	1.2	2.1	1.2	1.9	.99	.41	.23	.73
29	1.2	4.5	1.7	.89	---	1.9	1.6	1.5	.88	.35	.24	.60
30	1.3	2.4	1.7	9.1	---	19	21	1.3	.60	.35	.29	.43
31	1.2	---	.93	2.2	---	34	---	1.2	---	.35	.22	---
MEAN	1.30	10.5	1.30	2.36	4.20	5.29	5.04	19.4	6.88	1.67	.61	7.43
MAX	12	134	9.9	19	55	34	21	108	61	20	4.2	115
MIN	.14	.44	.34	.39	.50	1.0	1.2	1.2	.60	.35	.22	.15
IN.	.75	5.91	.75	1.37	2.20	3.07	2.82	11.21	3.86	.97	.35	4.16

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	1987	1988	1989	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
MEAN	1.20	4.03	3.79	3.18	5.09	5.00	6.40	5.54	2.07	2.30	.80	1.74	
MAX	2.86	10.5	11.5	6.82	9.02	9.29	11.6	19.4	6.88	6.40	2.54	7.43	
(WY)	1988	1989	1984	1982	1988	1980	1983	1989	1989	1984	1986	1989	
MIN	.22	.67	.18	.12	.92	1.64	.74	.76	.41	.08	.12	.11	
(WY)	1987	1981	1981	1981	1980	1985	1985	1986	1980	1980	1980	1980	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	5.48	3.42
HIGHEST ANNUAL MEAN		5.48
LOWEST ANNUAL MEAN		1.88
HIGHEST DAILY MEAN	134	139
LOWEST DAILY MEAN	.14	.00
INSTANTANEOUS PEAK FLOW	749	816
INSTANTANEOUS PEAK STAGE	5.59	5.60
INSTANTANEOUS LOW FLOW	.12	.00
ANNUAL RUNOFF (INCHES)	37.39	23.36
10 PERCENTILE	11	6.1
50 PERCENTILE	1.1	.75
95 PERCENTILE	.21	.08

e Estimated

01403300 RARITAN RIVER AT QUEENS BRIDGE AT BOUND BROOK, NJ
(National stream-quality accounting network)

LOCATION.--Lat 40°33'34", long 74°31'41", Somerset County, Hydrologic Unit 02030105, at Queens Bridge on Main street in Bound Brook, 1.7 mi upstream of Fieldsville Dam.

DRAINAGE AREA.--804 mi².

PERIOD OF RECORD.--Water years 1964 to 1969, 1971 to 1973, 1978 and November 1981 to present. Published as "at Bound Brook" (station 01403000) 1964-66, and as "below Calco Dam at Bound Brook" (station 01403060) 1967-69.

REMARKS.--Instantaneous discharges are determined at Raritan River below Calco Dam at Bound Brook (station 01403060).

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CaCO3)
NOV 1988												
15...	0900	E630	233	7.5	8.0	10	9.7	82	3.9	530	1100	82
FEB 1989												
17...	1330	E970	250	7.8	3.0	6.6	15.0	109	4.8	--	--	74
MAY												
05...	1230	E1450	203	7.0	14.5	6.6	10.3	102	1.7	530	420	65
SEP												
11...	1355	E325	254	8.8	25.5	1.6	11.5	141	5.6	480	1200	85

DATE	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)	CAR-BONATE IT-FLD (MG/L AS CO3)	BICAR-BONATE IT-FLD (MG/L AS HCO3)	ALKA-LINITY, CARBON-ATE IT-FLD (MG/L AS CACO3)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)
NOV 1988												
15...	20	7.7	16	3.1	--	--	--	48*	33	21	0.2	9.0
FEB 1989												
17...	18	7.0	19	2.4	--	--	--	34*	30	33	0.2	8.8
MAY												
05...	16	6.0	12	2.0	--	44	36	52	24	16	0.2	9.5
SEP												
11...	21	7.9	17	2.6	4.2	66	62	54	30	21	0.1	6.4

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHOROUS TOTAL (MG/L AS P)	PHOS-PHOROUS DIS-SOLVED (MG/L AS P)	PHOS-PHOROUS ORTHO, DIS-SOLVED (MG/L AS P)
NOV 1988											
15...	148	15	90	0.040	1.70	0.360	0.350	1.0	0.200	0.160	0.130
FEB 1989											
17...	148	10	84	0.040	1.80	0.490	0.420	1.0	0.150	0.080	0.040
MAY											
05...	114	15	90	0.010	1.40	0.100	0.100	0.50	0.120	0.080	0.050
SEP											
11...	156	9	78	0.020	1.70	0.030	0.020	1.0	0.320	0.260	0.220

*Laboratory determination

RARITAN RIVER BASIN

01403300 RARITAN RIVER AT QUEENS BRIDGE AT BOUND BROOK, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)
NOV 1988 15...	0900	30	1	36	<0.5	<1	<1	<3	4	99	<5
FEB 1989 17...	1330	30	<1	37	<0.5	<1	<1	<3	3	65	<5
MAY 05...	1230	30	<1	32	<0.5	<1	<1	<3	3	99	<5
SEP 11...	1355	50	1	28	<0.5	<1	<1	<3	2	45	<1

DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
NOV 1988 15...	5	42	0.2	<10	1	<1	<1.0	140	<6	14
FEB 1989 17...	4	51	--	<10	1	<1	<1.0	120	<6	4
MAY 05...	<4	51	<0.1	<10	<1	<1	<1.0	94	<6	11
SEP 11...	<4	16	<0.1	<10	1	<1	<1.0	140	<6	7

01403400 GREEN BROOK AT SEELEY MILLS, NJ

LOCATION.--Lat 40°39'53", long 74°24'10", Somerset County, Hydrologic Unit 02030105, on right bank at Seeley Mills, 250 ft downstream from Blue Brook, 300 ft downstream from bridge on Diamond Hill Road, and 0.5 mi northwest of Scotch Plains.

DRAINAGE AREA.--6.23 mi².

PERIOD OF RECORD.--Occasional low-flow measurements, water years 1959-64, 1969: annual maximum, water years 1969-79. June 1979 to current year. Fragmentary records 1944-53 in the files of the Geological Survey. Crest-stage data 1927-38, 1958-68 in files of Union County Park Commission.

REVISED RECORDS.--WDR-NJ 81-1: 1979(M). WDR-NJ 87-1: 1971(M), 1973(M), 1975(M).

GAGE.--Water-stage recorder. Datum of gage is 184.44 ft above National Geodetic Vertical Datum of 1929. From 1944 to 1953, water-stage recorder and masonry dam about 400 ft downstream above lower Seeley Mills dam at different datum. From July 1969 to May 1979, crest-stage gage about 450 ft downstream below lower Seeley Mills dam (washed out May 29, 1968) at different datum.

REMARKS.--No estimated daily discharges. Records fair. Several measurements of water temperature were made during the year. Recording rain-gage and gage-height telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 23, 1938 reached an elevation of 196.5 ft, New Jersey Geological Survey datum, above lower Seeley Mills dam.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.5	23	9.1	5.2	6.2	7.2	24	9.2	6.8	5.7	5.1	5.1
2	5.5	8.0	7.9	5.1	5.7	6.7	14	117	6.1	5.5	5.0	5.1
3	4.3	5.3	7.3	5.1	6.7	6.6	16	27	5.7	5.5	5.6	5.0
4	3.4	4.9	6.7	5.2	5.6	6.6	13	16	5.6	5.5	4.9	4.8
5	3.3	16	6.6	13	5.0	6.8	13	28	5.3	78	5.0	4.8
6	3.3	8.9	6.3	4.4	5.4	8.8	25	157	11	19	4.8	4.8
7	3.8	5.4	6.2	4.5	5.3	6.8	16	38	18	10	5.0	4.8
8	7.6	4.9	5.8	10	5.0	6.4	16	22	11	18	4.7	4.8
9	4.2	4.6	5.5	7.9	4.7	6.5	13	16	54	7.8	4.5	4.8
10	3.5	4.7	5.3	5.9	4.5	6.7	11	142	105	7.3	4.5	4.8
11	3.4	4.6	5.0	5.5	4.6	7.4	9.6	100	17	7.4	9.6	4.7
12	3.3	4.2	7.8	16	4.5	7.8	8.9	40	9.6	6.1	21	4.5
13	3.3	15	4.6	10	4.4	6.9	9.8	27	62	11	14	4.5
14	3.4	6.7	4.7	7.3	8.8	6.7	9.0	20	21	6.4	17	14
15	3.4	5.2	4.8	20	9.5	6.9	31	16	27	5.8	29	6.2
16	3.5	4.8	4.5	9.9	10	6.3	44	138	21	13	9.9	9.2
17	3.5	41	4.4	8.1	6.4	5.9	18	136	15	17	6.7	8.2
18	3.5	8.8	5.7	7.4	6.0	9.6	13	44	11	6.9	5.8	5.1
19	3.6	6.4	4.3	7.1	5.7	7.9	12	27	9.1	6.2	7.1	177
20	3.5	185	4.3	6.8	5.5	7.1	9.7	20	8.1	8.0	6.0	162
21	24	54	5.8	5.8	67	19	8.8	16	9.7	6.4	11	111
22	17	16	4.7	5.4	37	9.6	8.2	13	9.0	6.1	7.3	21
23	4.7	9.9	7.2	5.5	19	8.2	7.6	29	19	5.8	9.5	54
24	4.7	8.4	12	5.5	12	47	7.2	32	16	5.8	6.4	20
25	4.1	7.3	8.6	5.4	9.4	38	6.9	16	8.4	5.5	5.7	11
26	4.0	6.7	6.0	6.1	8.6	16	6.7	12	7.7	5.5	5.5	38
27	4.0	9.1	5.5	6.7	8.4	12	6.3	13	7.4	5.4	5.3	14
28	4.1	110	9.2	5.4	7.9	10	5.9	9.6	7.0	5.5	5.1	9.7
29	4.0	20	7.2	5.3	---	9.3	7.2	8.0	6.5	5.1	6.6	8.6
30	3.8	11	5.9	11	---	16	15	7.3	6.1	5.1	5.7	7.9
31	3.9	---	5.6	7.1	---	45	---	7.2	---	5.1	5.1	---
MEAN	5.00	20.7	6.27	7.54	10.3	12.0	13.5	42.0	17.5	10.0	8.01	24.6
MAX	24	185	12	20	67	47	44	157	105	78	29	177
MIN	3.3	4.2	4.3	4.4	4.4	5.9	5.9	7.2	5.3	5.1	4.5	4.5
IN.	.93	3.70	1.16	1.39	1.72	2.22	2.42	7.78	3.14	1.86	1.48	4.42

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	4.60	10.4	12.3	9.50	13.0	15.6	21.9	15.0	6.94	7.27	4.16	6.20
MEAN	4.60	10.4	12.3	9.50	13.0	15.6	21.9	15.0	6.94	7.27	4.16	6.20
MAX	10.8	22.4	46.9	19.2	20.9	36.5	41.1	42.0	17.5	18.9	8.01	24.6
(WY)	1980	1986	1984	1982	1984	1983	1983	1989	1989	1984	1989	1989
MIN	1.72	2.04	2.57	1.67	2.95	5.11	3.50	4.48	2.74	1.89	1.33	1.85
(WY)	1983	1982	1981	1981	1980	1985	1985	1986	1981	1980	1981	1982

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	14.8	10.5
HIGHEST ANNUAL MEAN	18.2	1984
LOWEST ANNUAL MEAN	5.16	1981
HIGHEST DAILY MEAN	185	Nov 20
LOWEST DAILY MEAN	3.3	Oct 5
INSTANTANEOUS PEAK FLOW	826	Sep 20
INSTANTANEOUS PEAK STAGE	4.53	Sep 20
INSTANTANEOUS LOW FLOW	3.1	Oct 5
ANNUAL RUNOFF (INCHES)	32.26	22.97
10 PERCENTILE	26	21
50 PERCENTILE	6.8	4.8
95 PERCENTILE	3.7	1.2

a From rating curve extended above 600 ft³/s on basis of slope-area measurement of peak flow

b Site and datum then in use

01403535 EAST BRANCH STONY BROOK AT BEST LAKE AT WATCHUNG, NJ

LOCATION---Lat 40°38'25", long 74°26'52", Somerset County, Hydrologic Unit 02030105, 700 ft upstream of dam on Best Lake in Watchung, 1,400 ft upstream of mouth, and 0.5 mi northeast of Watchung.

DRAINAGE AREA---1.57 mi².

PERIOD OF RECORD---July 1980 to current year.

GAGE---Water-stage recorder above concrete dam. Datum of gage is 193.87 ft above National Geodetic Vertical Datum of 1929 (levels by Somerset County).

REMARKS---No estimated daily discharges. Records fair. Records given herein represent flow over dam and leakage through ports in dam. Several measurements of water temperature were made during the year. Recording rain-gage and gage-height telemeter at station.

COOPERATION---Gage-height record collected in cooperation with Somerset County.

EXTREMES OUTSIDE PERIOD OF RECORD---Flood of August 2, 1973, reached a stage of 5.4 ft, present datum, from floodmarks, discharge, 2,840 ft³/s, by computation of flow over dam, embankment, and road.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.48	5.2	3.2	.71	1.3	1.6	7.0	1.7	.83	.53	.41	.38
2	.54	.70	2.7	.71	.99	1.1	4.7	36	.70	.51	.39	.38
3	.65	.44	2.3	.63	1.7	1.1	5.4	6.5	.63	.48	.51	.37
4	.52	.44	1.1	.60	1.2	1.0	4.8	4.7	.61	.48	.40	.34
5	.50	3.8	.94	.54	.94	1.3	4.6	7.9	.58	22	.38	.32
6	.48	4.2	.88	.58	1.0	2.3	7.6	44	2.0	3.6	.34	.30
7	.52	2.8	.87	.57	.96	1.1	5.8	7.7	3.9	1.4	.32	.30
8	.91	2.3	.83	2.3	.88	.96	6.0	5.9	2.6	3.0	.30	.31
9	.53	1.9	.79	2.0	.80	1.0	5.2	5.9	20	.74	.25	.30
10	.51	1.8	.74	.90	.82	1.2	4.2	39	22	.62	.21	.30
11	.49	1.6	.68	.82	.85	1.7	3.7	19	3.9	.66	.46	.29
12	.48	1.3	.59	4.5	.82	2.3	3.4	8.9	2.3	.52	3.9	.27
13	.46	4.0	.56	3.5	.79	1.8	3.4	7.1	15	1.5	.73	.26
14	.49	1.1	.55	1.8	2.7	1.9	3.3	6.2	4.7	.61	2.1	1.1
15	.53	.70	.56	7.4	4.4	2.2	10	5.9	6.3	.52	3.3	.74
16	.63	.61	.55	3.6	3.8	1.2	13	34	5.4	3.3	.90	1.6
17	.73	10	.54	2.4	1.3	1.0	6.3	33	3.8	4.5	.51	1.5
18	.83	2.0	.53	1.7	.95	2.3	5.0	9.1	2.3	.88	.44	.50
19	.90	.90	.51	1.3	.88	1.8	4.5	6.6	1.4	.83	.58	42
20	.87	51	.49	1.1	.87	1.1	3.4	5.9	.94	1.5	.54	40
21	5.3	9.4	.65	.87	21	5.7	2.9	5.6	1.6	.86	.71	16
22	4.8	3.7	.59	.79	10	3.0	2.4	4.8	1.7	.77	.67	3.1
23	.46	2.6	1.2	.79	5.9	2.1	2.1	7.0	5.7	.67	1.4	10
24	.47	1.8	3.0	.79	3.1	12	1.8	6.6	4.9	.55	.61	3.6
25	.43	1.1	2.3	.76	2.7	9.5	1.7	4.7	1.8	.51	.48	1.3
26	.41	1.0	.86	.86	2.5	4.8	1.3	3.7	.90	.47	.42	8.7
27	.41	2.2	.72	1.2	2.5	3.8	1.0	3.5	.77	.43	.39	2.5
28	.41	31	1.7	.81	2.3	3.4	.90	2.4	.70	.41	.37	1.0
29	.45	4.9	1.2	.78	---	2.7	.96	1.5	.62	.40	.39	.92
30	.44	3.7	.82	3.4	---	4.4	3.7	1.1	.55	.38	.47	.86
31	.39	---	.76	2.1	---	12	---	.92	---	.40	.40	---
MEAN	.84	5.27	1.09	1.64	2.78	3.01	4.34	10.9	3.97	1.74	.75	4.65
MAX	5.3	51	3.2	7.4	21	12	13	44	22	22	3.9	42
MIN	.39	.44	.49	.54	.79	.96	.90	.92	.55	.38	.21	.26
IN.	.62	3.75	.80	1.20	1.85	2.21	3.08	7.98	2.82	1.28	.55	3.31

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	MAX	MIN
(WY)	1988	1988	1987
(WY)	1987	1983	1981
	.95	5.73	.24
	3.04	10.1	.90
	3.15	10.1	.52
	2.35	4.46	.07
	3.82	5.75	1.96
	3.67	9.02	1.67
	5.14	10.2	.82
	4.14	10.9	1.25
	1.83	3.97	.76
	1.67	4.53	.36
	.77	1.51	.09
	1.12	4.65	.25
		1989	1983

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	3.41	2.65
HIGHEST ANNUAL MEAN	4.47	1984
LOWEST ANNUAL MEAN	1.48	1981
HIGHEST DAILY MEAN	51	Nov 20
LOWEST DAILY MEAN	.21	Aug 10
INSTANTANEOUS PEAK FLOW	429	Sep 20
INSTANTANEOUS PEAK STAGE	2.46	Sep 20
INSTANTANEOUS LOW FLOW	.19	Aug 10
ANNUAL RUNOFF (INCHES)	29.49	22.96
10 PERCENTILE	6.7	5.4
50 PERCENTILE	1.1	.98
95 PERCENTILE	.34	.19

01403540 STONY BROOK AT WATCHUNG, NJ

LOCATION.--Lat 40°38'12", Long 74°27'06", Somerset County, Hydrologic Unit 02030105, on right bank at Watchung Borough Administration Building, 150 ft downstream from bridge on Watchung Avenue, and 2.9 mi upstream from confluence with Green Brook.

DRAINAGE AREA.--5.51 mi².

PERIOD OF RECORD.--October 1974 to current year.

REVISED RECORDS.--WDR NJ-86-1: 1973 (P).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 172.24 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except for estimated daily discharges, which are poor. Occasional regulation from Watchung and Best Lakes directly upstream from station. Several measurements of water temperature were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 2, 1973, reached a stage of 14.5 ft, from floodmark, discharge, 10,500 ft³/s, from slope-area measurements of peak flow.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	14	8.6	3.9	6.0	e6.4	e25	7.6	5.8	3.7	2.4	1.6
2	1.8	6.8	7.4	3.8	5.2	e5.3	e16	120	5.0	3.6	2.2	1.9
3	2.8	3.4	6.7	3.7	5.8	e5.2	e19	23	4.5	3.3	2.8	1.9
4	1.6	2.7	6.0	3.5	5.5	e5.0	e16	15	4.2	3.0	2.2	1.6
5	1.5	11	5.5	3.0	4.9	e5.6	e15	27	4.1	68	2.3	1.6
6	1.4	8.0	5.1	3.0	4.8	e8.0	e24	156	9.7	12	2.1	1.5
7	1.3	3.9	4.9	3.1	4.7	e5.1	e19	32	19	7.6	2.1	1.5
8	3.1	3.0	4.5	7.4	4.3	e4.6	18	21	12	14	1.9	1.4
9	2.0	2.7	4.2	7.4	3.8	e4.7	14	17	57	5.9	1.9	1.4
10	1.6	2.6	4.1	4.9	3.5	e5.3	12	132	66	5.0	2.0	1.4
11	1.5	2.7	4.0	4.4	3.4	e6.3	10	70	12	4.8	5.7	1.3
12	1.4	2.3	3.5	15	3.5	e7.2	9.4	34	9.0	3.8	12	1.2
13	1.4	10	3.4	10	3.3	e6.0	10	28	50	7.4	6.6	1.1
14	1.2	5.9	3.2	6.5	6.7	e6.1	9.7	21	17	5.2	6.0	4.6
15	1.3	3.7	3.1	23	9.6	e6.7	33	17	24	3.8	14	5.0
16	1.4	3.8	3.0	10	10	e5.1	41	123	21	10	6.4	5.0
17	1.4	35	2.7	7.6	6.3	e4.7	17	107	14	17	3.6	7.2
18	1.3	8.1	2.6	6.7	5.3	e8.5	13	35	11	6.4	3.0	2.6
19	1.3	5.3	2.5	6.5	4.9	e7.4	12	24	8.8	5.1	3.9	151
20	1.5	167	2.5	5.9	4.8	e5.6	10	19	7.9	6.5	3.7	135
21	12	34	3.6	5.1	68	e17	9.5	16	8.4	5.5	3.2	59
22	17	12	3.5	4.7	e31	e9.8	8.7	13	11	4.6	3.8	19
23	3.6	9.0	4.9	4.4	e19	e7.5	8.0	25	15	4.1	13	32
24	2.8	7.5	11	4.3	e12	e35	7.4	25	15	3.6	6.3	13
25	2.5	6.4	8.8	4.4	e10	e31	6.8	13	8.0	3.2	3.3	8.2
26	2.1	5.5	5.2	4.6	e9.3	e18	6.3	11	6.6	2.9	2.6	34
27	1.9	6.5	4.4	6.0	e8.7	e14	5.7	11	5.6	2.7	2.2	10
28	1.9	77	6.2	4.6	e8.1	e12	5.3	9.1	5.0	2.5	2.1	7.5
29	1.8	16	6.3	4.3	---	e9.9	5.4	7.6	5.2	2.3	2.2	6.5
30	1.8	11	4.7	11	---	e14	14	6.9	4.4	2.3	2.5	5.5
31	1.7	---	4.3	7.8	---	e37	---	6.4	---	2.4	1.8	---
MEAN	2.62	16.2	4.85	6.47	9.73	10.5	14.0	37.8	14.9	7.49	4.19	17.5
MAX	17	167	11	23	68	37	41	156	66	68	14	151
MIN	1.2	2.3	2.5	3.0	3.3	4.6	5.3	6.4	4.1	2.3	1.8	1.1
IN.	.55	3.29	1.02	1.35	1.84	2.19	2.84	7.92	3.01	1.57	.88	3.54

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

MEAN	4.84	9.26	12.1	13.2	13.3	16.8	17.6	13.5	6.59	6.93	3.55	5.51
MAX	15.1	22.2	37.1	37.5	20.1	31.9	38.3	37.8	18.0	32.1	8.08	18.6
(WY)	1976	1978	1984	1979	1988	1983	1983	1989	1975	1975	1975	1975
MIN	1.31	1.94	1.79	1.08	3.60	5.60	3.89	3.42	2.27	1.27	.81	.87
(WY)	1983	1977	1981	1981	1980	1985	1985	1986	1980	1977	1981	1983

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	12.2	10.2
HIGHEST ANNUAL MEAN		16.0
LOWEST ANNUAL MEAN		5.60
HIGHEST DAILY MEAN	167	358
LOWEST DAILY MEAN	1.1	.00
INSTANTANEOUS PEAK FLOW	1200	4420a
INSTANTANEOUS PEAK STAGE	6.32	10.40
INSTANTANEOUS LOW FLOW	.80	.00
ANNUAL RUNOFF (INCHES)	30.06	25.23
10 PERCENTILE	23	22
50 PERCENTILE	5.8	4.5
95 PERCENTILE	1.5	.69

a From rating curve extended above 500 ft³/s on basis of slope area measurement of peak flow
e Estimated

01405000 LAWRENCE BROOK AT FARRINGTON DAM, NJ

LOCATION.--Lat 40°27'00" Long 74°27'05", Middlesex County, Hydrologic Unit 02030105, on left bank 300 ft upstream from Farrington Dam, 0.7 mi southwest of Milltown, and 5.4 mi upstream from mouth.

DRAINAGE AREA.--34.4 mi².

PERIOD OF RECORD.--May 1927 to current year.

REVISED RECORDS.--WSP 781: Drainage area. WSP 1432: 1959(P).

GAGE.--Water-stage recorder above concrete dam. Datum of gage is 25.8 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records fair except those below 15 ft³/s, which are poor. Records given herein include flow over dam and through blowoff gates. No gate opening this year. Flow regulated by Farrington Lake, capacity, 655,250,000 gal. Several measurements of water temperature were made during the year.

COOPERATION.--Water-stage recorder inspected by and records of gate openings furnished by employees of City of New Brunswick.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.6	42	36	16	24	25	125	26	25	18	23	11
2	6.6	61	28	14	21	22	56	192	22	17	20	9.5
3	10	22	22	14	25	20	47	105	20	16	41	9.1
4	12	19	19	14	25	20	45	52	37	14	24	8.2
5	9.8	22	18	13	21	20	46	53	26	601	19	7.7
6	7.8	29	17	13	20	39	129	316	46	314	18	7.8
7	7.1	17	17	14	20	38	78	125	88	103	23	8.2
8	9.9	14	16	18	18	26	90	64	139	69	26	8.1
9	12	12	15	32	16	25	58	48	156	38	17	7.9
10	9.2	11	14	23	13	26	43	260	608	31	16	8.0
11	7.8	10	14	20	11	33	35	328	133	27	32	7.7
12	7.1	9.6	13	32	11	42	32	130	66	23	66	7.5
13	6.9	19	11	61	10	38	32	93	102	30	49	7.1
14	6.7	38	11	26	25	30	32	59	60	29	31	9.8
15	6.6	18	12	92	38	28	52	47	54	22	24	27
16	6.6	15	12	55	64	25	202	501	95	47	22	21
17	6.6	86	11	36	37	22	82	388	59	158	19	32
18	6.6	61	11	29	25	28	51	166	40	49	16	19
19	6.5	28	10	29	23	52	43	90	33	33	18	231
20	6.5	205	10	23	23	31	37	58	27	75	18	1090
21	15	197	14	20	128	68	35	44	28	76	18	1420
22	112	87	18	18	230	49	31	38	32	41	20	227
23	28	53	18	18	111	32	29	76	36	34	17	103
24	16	33	28	16	56	92	28	150	61	28	24	58
25	12	26	36	16	40	204	26	66	37	24	17	44
26	9.6	21	23	18	32	82	26	42	29	22	14	128
27	8.6	24	18	18	32	48	23	43	24	20	11	80
28	8.2	202	20	18	27	38	20	38	21	28	11	48
29	8.2	101	29	16	---	32	21	30	21	21	12	38
30	7.7	53	20	33	---	34	31	26	19	19	18	33
31	7.3	---	18	35	---	176	---	26	---	24	13	---
MEAN	12.6	51.2	18.0	25.8	40.2	46.6	52.8	119	71.5	66.2	22.5	124
MAX	112	205	36	92	230	204	202	501	608	601	66	1420
MIN	6.5	9.6	10	13	10	20	20	26	19	14	11	7.1
(†)	+0.3	+0.6	-0.2	+0.1	0	+0.8	-0.8	-0.5	-0.1	+0.1	-0.3	+0.4
MEAN*	12.9	51.8	17.8	25.9	40.2	47.4	52.0	118	71.4	66.3	22.2	124

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	20.9	35.4	41.9	47.1	54.9	66.0	56.0	41.8	26.0	27.9	22.3	26.7
MAX	132	133	123	143	126	142	124	119	89.7	197	113	131	
(WY)	1928	1973	1974	1979	1973	1936	1983	1989	1973	1975	1971	1975	
MIN	2.90	.00	4.77	.30	4.58	19.3	15.2	11.7	7.76	4.00	2.35	3.96	
(WY)	1981	1954	1966	1966	1980	1981	1966	1965	1966	1966	1965	1983	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	54.1	38.7
AVERAGE*	54.1	38.7
HIGHEST ANNUAL MEAN		75.1
LOWEST ANNUAL MEAN		15.7
HIGHEST DAILY MEAN	1420	2040
LOWEST DAILY MEAN	6.5	.00
INSTANTANEOUS PEAK FLOW	4360	4920 ^a
INSTANTANEOUS PEAK STAGE	26.77	26.93
INSTANTANEOUS LOW FLOW	6.5	.00
10 PERCENTILE	102	82
50 PERCENTILE	27	22
95 PERCENTILE	7.8	5.0

^a From rating curve extended above 1,100 ft³/s on basis of weir formula.

† Change in contents, in cubic feet per second, in Farrington Lake.

* Adjusted for change in contents.

01405030 LAWRENCE BROOK AT WESTONS MILLS, NJ

LOCATION.--Lat 40°28'59", long 74°24'45", Middlesex County, Hydrologic Unit 02030105, on left bank at dam on Weston Mill Pond in Westons Mills, 200 ft downstream from bridge on State Route 18, and 1.3 mi upstream from mouth.

DRAINAGE AREA.--44.9 mi² (revised).

PERIOD OF RECORD.--December 1988 to September 1989. Water-quality records water years 1976-81.

GAGE.--Water-stage recorder above masonry dam. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except for estimated daily discharges, which are fair. Records given herein include flow over dam and through bypass gates. No gate openings this period. Flow regulated by Farrington Lake, capacity, 655,250,000 gal. Diversion at gage by New Brunswick Water Department (records given herein). Several measurements of water temperature were made during the year.

COOPERATION.--Water-stage recorder inspected by and records of gate openings provided by employees of City of New Brunswick.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	26	e27	34	151	40	29	17	26	5.9
2	---	---	---	25	e25	31	74	289	22	18	22	5.1
3	---	---	---	17	35	27	64	134	17	11	47	3.6
4	---	---	---	20	35	27	63	64	80	12	27	3.3
5	---	---	---	15	28	30	69	69	32	950	20	3.0
6	---	---	---	16	28	57	162	470	68	531	14	1.9
7	---	---	---	19	27	53	101	156	145	105	29	1.6
8	---	---	---	40	24	40	113	78	180	100	36	1.3
9	---	---	---	50	21	39	76	56	212	36	19	1.6
10	---	---	---	35	19	39	59	360	1040	29	14	1.4
11	---	---	---	30	15	45	51	530	167	31	46	.81
12	---	---	---	e33	15	53	44	153	77	26	117	.74
13	---	---	---	e66	15	48	43	107	131	43	73	.76
14	---	---	---	e22	55	42	42	73	71	37	40	18
15	---	---	---	e141	62	41	83	57	67	29	29	34
16	---	---	---	e56	90	37	272	788	121	75	26	26
17	---	---	---	e35	51	33	100	630	77	229	19	43
18	---	---	---	e33	38	48	63	211	51	67	14	18
19	---	---	---	e31	32	72	54	104	38	41	20	572
20	---	---	---	e23	29	44	46	73	32	105	23	1770
21	---	---	---	e21	252	89	41	60	30	96	20	2200
22	---	---	30	e17	327	64	37	50	34	50	35	249
23	---	---	33	e16	134	44	33	113	37	39	22	88
24	---	---	49	e16	63	141	29	208	66	29	33	36
25	---	---	53	e17	47	277	30	90	43	22	15	30
26	---	---	34	e19	43	94	28	58	30	21	8.7	176
27	---	---	27	e17	44	63	27	58	21	20	7.0	93
28	---	---	39	e17	38	54	26	52	20	35	6.1	51
29	---	---	54	e16	---	46	29	40	17	24	36	40
30	---	---	35	e38	---	49	54	35	13	20	38	34
31	---	---	29	e39	---	210	---	31	---	27	9.0	---
MEAN	---	---	---	31.2	57.8	63.6	68.8	169	98.9	92.7	28.7	184
MAX	---	---	---	141	327	277	272	788	1040	950	117	2200
MIN	---	---	---	15	15	27	26	31	13	11	6.1	.74
(†)	1.05	.91	.58	.14	0	.16	.88	1.44	3.14	2.60	1.61	2.32

SUMMARY STATISTICS

FOR PERIOD OF RECORD

HIGHEST DAILY MEAN
 LOWEST DAILY MEAN
 INSTANTANEOUS PEAK FLOW
 INSTANTANEOUS PEAK STAGE
 INSTANTANEOUS LOW FLOW

2200 Sep 21
 .74 Sep 12
 4850a Sep 21
 19.20 Sep 21
 0 Many days

a From rating curve extended above 1,000 ft³/s.

e Estimated

† Diversion, in cubic feet per second, by City of New Brunswick for municipal supply.

RARITAN RIVER BASIN

01405302 MATCHAPONIX BROOK AT MUNDY AVENUE AT SPOTSWOOD, NJ

LOCATION---Lat 40°23'22", Long 74°22'55", Middlesex County, Hydrologic Unit 02030105, at bridge on Mundy Avenue in Spotswood, 0.2 mi upstream from mouth, 0.5 mi east of De Voe Lake dam, and 3.4 mi southeast of Tanners Corners.

DRAINAGE AREA---44.1 mi².

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

COOPERATION---Field data and samples for laboratory analyses provided by New Jersey Department of Environmental Protection, Division of Water Resources. Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988 17...	1200	9.5E	316	7.4	12.0	7.9	73	E2.0	130	33
JAN 1989 19...	1230	48 E	278	6.2	5.0	12.2	96	E2.1	<20	13
APR 18...	1230	105 E	218	4.8	11.0	12.2	111	<1.0	20	33
JUN 06...	1030	88 E	258	6.8	18.5	8.0	86	<0.9	220	>2400
JUL 25...	1030	68 E	273	6.8	20.0	6.8	75	E1.3	330	1600
AUG 09...	1400	55 E	260	6.0	20.5	7.1	79	<0.7	50	240
23...	1100	55 E	247	6.8	21.5	7.1	81	<0.1	790	1600

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988 17...	98	33	3.8	28	5.4	30	60	32	0.1
JAN 1989 19...	54	15	4.0	17	3.7	7.0	56	23	0.1
APR 18...	52	15	3.6	12	2.6	<1.0	55	17	0.2
JUN 06...	67	21	3.5	16	4.3	6.0	52	20	0.1
JUL 25...	62	19	3.5	15	4.0	8.0	46	20	0.2
AUG 09...	60	18	3.6	16	3.7	5.0	50	23	0.1
23...	60	18	3.7	16	4.0	8.0	47	23	0.2

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988 17...	12	192	0.103	9.20	0.27	0.78	10	0.04	3.9
JAN 1989 19...	9.9	133	<0.009	1.11	2.90	3.3	4.4	0.13	4.9
APR 18...	8.9	--	0.013	1.61	0.17	0.33	1.9	0.07	2.7
JUN 06...	9.8	130	0.009	4.36	0.19	0.80	5.2	0.11	4.8
JUL 25...	11	123	0.007	3.82	0.17	0.55	4.4	0.07	3.9
AUG 09...	10	127	0.013	3.35	0.20	0.46	3.8	0.05	4.1
23...	11	128	0.008	4.01	0.13	0.53	4.5	0.07	3.5

01405302 MATCHAPONIX BROOK AT MUNDY AVENUE AT SPOTSWOOD, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SULFIDE TOTAL (MG/L AS S)	NITRO- GEN, NH ₄ + ORG. TOT IN BOT MAT (MG/KG AS N)	CARBON, INOR- GANIC, TOT IN BOT MAT (G/KG AS C)	CARBON, INORG + ORGANIC TOT. IN BOT MAT (GM/KG AS C)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC IN BOT- TOM MA- TERIAL (UG/G AS AS)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CD)
OCT 1988												
17...	1200	<0.5	--	--	--	<10	<1	--	<10	70	<1	--
17...	1200	--	730	0.1	6.9	--	--	5	--	--	--	<10
DATE		CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	CHRO- MIUM, RECOV. FM BOT- TOM MA- TERIAL (UG/G)	COBALT, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, RECOV. FM BOT- TOM MA- TERIAL (UG/G)
OCT 1988												
17...		<1	--	--	5	--	1200	--	<5	--	120	--
17...		--	6	<50	--	5	--	8600	--	<100	--	25
DATE		MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY RECOV. FM BOT- TOM MA- TERIAL (UG/G AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	NICKEL, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SELE- NIUM, IN BOT- TOM MA- TERIAL (UG/G)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS ZN)	PHENOLS TOTAL (UG/L)	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PCN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
OCT 1988												
17...		<0.10	--	8	--	<1	--	30	--	2	--	--
17...		--	0.02	--	<100	--	<1	--	20	--	<1	<1.0
DATE		ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- AZINON, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDO- SULFAN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ETHION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
OCT 1988												
17...		--	--	--	--	--	--	--	--	--	--	--
17...		<0.1	5.0	0.8	0.8	0.5	0.7	0.2	<0.1	<0.1	<0.1	<0.1
DATE		HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	MALA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA- THION, TOT. IN BOTTOM MATL. (UG/KG)	METHYL TRI- THION, TOT. IN BOTTOM MATL. (UG/KG)	MIREX, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PARA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PER- THANE IN BOT- TOM MA- TERIAL (UG/KG)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TRI- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
OCT 1988												
17...		--	--	--	--	--	--	--	--	--	--	--
17...		0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.00	<10	<0.1

01405340 MANALAPAN BROOK AT FEDERAL ROAD NEAR MANALAPAN, NJ

LOCATION.--Lat 40°17'46", Long 74°23'53", Middlesex County, Hydrologic Unit 02030105, at bridge on Federal Road, 2.6 mi north of Manalapan, 3.1 mi southwest of Matchaponix, 3.3 mi downstream of Still House Brook, and 4.1 mi northeast of Applegarth.

DRAINAGE AREA.--20.9 mi².

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

COOPERATION.--Field data and samples for laboratory analyses provided by New Jersey Department of Environmental Protection, Division of Water Resources. Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988 19...	1130	E 4.7	--	8.5	11.5	9.8	--	<1.0	20	350
FEB 1989 07...	1100	E16	172	7.2	1.5	15.2	109	<0.8	50	14
APR 11...	1200	E26	139	7.1	8.5	11.7	99	<0.8	<20	11
JUN 07...	1030	E42	121	7.0	19.0	7.6	83	E2.0	1700	>2400
JUL 27...	1330	E23	135	7.0	25.0	8.0	98	E1.2	110	920
AUG 02...	1030	E26	122	6.6	20.0	9.1	100	<0.9	130	1600

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988 19...	37	8.5	3.9	7.6	3.2	10	24	15	0.1
FEB 1989 07...	37	8.8	3.7	9.5	2.4	2.0	29	18	0.2
APR 11...	34	8.0	3.4	6.4	3.6	2.0	27	13	0.2
JUN 07...	32	7.4	3.2	6.7	2.3	8.0	18	13	0.2
JUL 27...	33	8.0	3.2	7.0	3.3	9.6	18	15	0.2
AUG 02...	34	8.0	3.3	6.3	2.6	10	16	12	0.2

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOROUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988 19...	9.1	77	0.007	1.30	<0.05	0.25	1.5	0.05	2.4
FEB 1989 07...	10	83	0.006	1.94	0.09	0.14	2.1	0.06	1.5
APR 11...	8.9	72	0.005	1.35	0.08	0.30	1.6	0.06	2.2
JUN 07...	8.3	64	0.017	1.35	0.26	0.65	2.0	0.20	6.2
JUL 27...	9.7	70	0.023	0.99	<0.05	0.41	1.4	0.10	5.6
AUG 02...	9.3	64	0.032	1.87	<0.05	0.48	2.4	0.12	4.8

01405340 MANALAPAN BROOK AT FEDERAL ROAD NEAR MANALAPAN, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SULFIDE TOTAL (MG/L AS S)	NITRO- GEN, NH4 + ORG. TOT IN BOT MAT (MG/KG AS N)	CARBON, INOR- GANIC, TOT IN BOT MAT (G/KG AS C)	CARBON, INORG + ORGANIC TOT. IN BOT MAT (GM/KG AS C)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC IN BOT- TOM MA- TERIAL (UG/G AS AS)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CD)
OCT 1988												
19...	1130	<0.5	--	--	--	40	<1	--	<10	<10	<1	--
19...	1130	--	610	0.2	6.1	--	--	9	--	--	--	<10
DATE		CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)	CHRO- MIUM, RECOV. FM BOT- TOM MA- TERIAL (UG/G)	COBALT, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, RECOV. FM BOT- TOM MA- TERIAL (UG/G)
OCT 1988												
19...		<1	--	--	3	--	840	--	<5	--	60	--
19...		--	10	<10	--	3	--	23000	--	<100	--	95
DATE		MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY RECOV. FM BOT- TOM MA- TERIAL (UG/G AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	NICKEL, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SELE- NIUM, IN BOT- TOM MA- TERIAL (UG/G)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS ZN)	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PCN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	
OCT 1988												
19...		<0.10	--	5	--	<1	--	20	--	1	--	--
19...		--	0.01	--	<100	--	<1	--	40	--	<1	<1.0
DATE		ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- AZINON, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDO- SULFAN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ETHION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
OCT 1988												
19...		--	--	--	--	--	--	--	--	--	--	--
19...		<0.1	<1.0	3.0	1.6	0.9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
DATE		HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	MALA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA- THION, TOT. IN BOTTOM MATL. (UG/KG)	METHYL TRI- THION, TOT. IN BOTTOM MATL. (UG/KG)	MIREX, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PARA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PER- THANE IN BOT- TOM MA- TERIAL (UG/KG)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TRI- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
OCT 1988												
19...		--	--	--	--	--	--	--	--	--	--	--
19...		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.00	<10	<0.1

RARITAN RIVER BASIN

01405400 MANALAPAN BROOK AT SPOTSWOOD, NJ

LOCATION.--Lat 40°23'22", long 74°23'27", Middlesex County, Hydrologic Unit 02030105, on right bank of DeVoe Lake Dam in Spotswood, 0.1 mi upstream from Cedar Brook, and 0.6 mi upstream from confluence with Matchaponix Brook.

DRAINAGE AREA.--40.7 mi².

PERIOD OF RECORD.--January 1957 to current year.

REVISED RECORDS.--WSP 1722: 1957-60.

GAGE.--Water-stage recorder above concrete dam. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Duhermal Water System). January 1957 to September 1966 at datum 17.72 ft higher.

REMARKS.--Records fair except for estimated daily discharges, which are poor. Discharge given herein includes flow through waste gates when open. Gates open Dec. 20 to Mar. 22, July 23-24, and Sept. 20-23. Some regulation by Lake Manalapan, Helmetta Pond, and DeVoe Lake. Several measurements of water temperature were made during the year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.0	34	58	e31	e39	e46	121	50	44	34	61	40
2	11	50	46	e32	e31	e43	83	104	40	31	55	37
3	17	56	41	e32	e30	e40	62	144	35	31	81	35
4	15	34	37	e31	e36	e39	62	78	45	24	90	32
5	11	32	34	e27	e37	e39	63	60	43	67	58	31
6	9.8	36	33	e27	e34	e49	108	145	58	414	44	31
7	8.8	28	31	e34	e32	e59	105	180	96	370	55	31
8	13	29	31	e40	e31	e51	120	90	90	130	81	31
9	16	23	29	e47	e29	e44	117	62	74	81	67	30
10	11	24	29	e46	e26	e43	75	124	320	61	55	29
11	8.1	24	27	e38	e26	e45	57	345	373	49	67	29
12	12	22	22	e37	e26	e49	50	359	104	44	152	28
13	8.0	25	23	e45	e26	e50	49	129	92	47	333	27
14	7.6	28	24	e45	e29	e48	67	81	88	64	339	35
15	8.8	18	25	e50	e36	e46	38	63	78	54	162	52
16	7.7	38	26	e56	e44	e52	164	161	92	57	122	47
17	7.0	44	23	e53	e42	e53	150	363	130	201	98	67
18	8.3	62	23	e45	e36	e44	80	312	124	192	74	71
19	8.1	43	24	e41	e32	e44	65	129	112	86	70	145
20	7.6	95	e24	e35	e31	e48	57	85	67	83	61	836
21	14	196	e27	e30	e50	e55	51	66	61	241	55	e1200
22	72	99	e31	e27	184	e56	47	55	122	441	52	e425
23	69	53	e33	e27	231	51	43	59	64	e129	55	e148
24	41	40	e36	e29	e97	53	41	129	78	e91	74	87
25	28	35	e43	e29	e74	138	39	150	61	61	61	69
26	24	33	e40	e29	e52	184	39	92	52	52	46	121
27	19	35	e34	e27	e46	136	38	70	47	49	41	178
28	17	172	e34	e24	e48	76	36	133	41	143	38	101
29	16	240	e37	e26	---	54	35	81	39	98	37	71
30	14	97	e36	e35	---	50	47	54	36	61	53	61
31	7.4	---	e33	e44	---	91	---	48	---	58	54	---
MEAN	17.0	58.2	32.1	36.1	51.2	60.5	70.3	129	90.2	114	86.8	137
MAX	72	240	58	56	231	184	164	363	373	441	339	1200
MIN	7.0	18	22	24	26	39	35	48	35	24	37	27

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	39.5	59.4	76.1	77.4	83.6	93.1	87.5	70.1	47.2	46.1	42.8	43.1
MEAN	81.5	154	156	186	139	163	154	148	109	141	112	137
MAX	1976	1978	1984	1978	1979	1958	1983	1984	1968	1975	1971	1989
MIN	13.7	21.7	27.4	21.1	44.0	37.0	31.1	26.5	17.4	4.40	5.56	11.6
(WY)	1983	1966	1981	1981	1980	1985	1985	1977	1966	1966	1966	1965

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	73.6	64.2
HIGHEST ANNUAL MEAN		101
LOWEST ANNUAL MEAN		34.3
HIGHEST DAILY MEAN	1200	1390
LOWEST DAILY MEAN	7.0	.00
INSTANTANEOUS PEAK FLOW	1700a	1700a
INSTANTANEOUS PEAK STAGE	20.50	20.50
INSTANTANEOUS LOW FLOW	3.9	.00
10 PERCENTILE	140	122
50 PERCENTILE	48	47
95 PERCENTILE	14	15

a Waste gates open
e Estimated

RARITAN RIVER BASIN

2195

01405440 MANALAPAN BROOK AT BRIDGE STREET AT SPOTSWOOD, NJ

LOCATION.--Lat 40°23'26", long 74°23'26", Middlesex County, Hydrologic Unit 02030105, at bridge on Bridge Street in Spotswood, 150 ft downstream from Cedar Brook, and 400 ft below DeVoe Lake Dam.

DRAINAGE AREA.--43.9 mi².

PERIOD OF RECORD.--February 1979 to current year.

COOPERATION.--Field data and samples for laboratory analyses provided by New Jersey Department of Environmental Protection, Division of Water Resources. Analyses of fecal coliform and fecal streptococci by the MPN method and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988										
17...	1100	E9.7	129	8.0	11.5	7.0	64	E1.0	80	540
JAN 1989										
19...	1030	E48	121	5.2	5.0	11.8	93	<0.8	<20	13
APR										
18...	1000	E94	133	4.9	10.5	11.8	105	<1.1	<20	170
JUN										
06...	1200	E55	110	6.4	17.0	7.9	83	E1.4	2200	430
JUL										
25...	1130	E75	110	5.2	21.5	8.0	90	E1.7	50	350
AUG										
09...	1130	E116	126	6.4	19.5	--	--	<0.9	80	350
23...	1300	E156	120	6.0	21.0	7.9	90	E1.4	70	920

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988									
17...	30	5.9	3.8	7.0	2.1	3.0	18	13	<0.1
JAN 1989									
19...	27	5.2	3.4	6.4	2.6	<1.0	22	12	0.1
APR									
18...	32	7.4	3.2	7.1	2.2	<1.0	28	13	0.1
JUN									
06...	25	5.5	2.8	6.4	1.9	2.0	18	12	0.1
JUL									
25...	26	6.1	2.5	5.8	2.2	1.0	21	11	0.1
AUG									
09...	28	6.3	3.0	7.1	2.4	2.0	21	12	0.1
23...	31	7.3	3.1	6.8	10	2.0	24	13	0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988									
17...	7.4	59	0.005	2.40	<0.05	0.46	2.9	<0.02	2.7
JAN 1989									
19...	7.2	--	<0.003	2.61	0.09	0.48	3.1	0.03	4.9
APR									
18...	6.9	--	0.006	0.74	0.21	0.48	1.2	0.07	3.1
JUN									
06...	6.6	54	0.006	1.44	0.11	0.96	2.4	0.06	9.7
JUL									
25...	8.7	58	0.018	1.39	<0.05	0.71	2.1	0.08	6.1
AUG									
09...	7.2	60	0.010	0.72	0.06	0.51	1.2	0.07	6.4
23...	8.0	73	0.005	1.52	0.10	0.88	2.4	0.07	5.1

RARITAN RIVER BASIN

01405440 MANALAPAN BROOK AT BRIDGE STREET AT SPOTSWOOD, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	NITRO- GEN, NH4 + ORG. TOT IN BOT MAT (MG/KG AS N)	CARBON, INOR- GANIC, TOT IN BOT MAT (G/KG AS C)	CARBON, INORG + ORGANIC TOT. IN BOT MAT (GM/KG AS C)	ARSENIC TOTAL IN BOT- TOM MA- TERIAL (UG/G AS AS)	CADMIUM RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CD)	CHRO- MIUM, RECOV. FM BOT- TOM MA- TERIAL (UG/G)	COBALT, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CO)	COPPER, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CU)	IRON, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS FE)	
OCT 1988 17...	1100	320	<0.1	18	3	<10	4	<50	6	7100	
DATE		LEAD, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS PB)	MANGA- NESE, RECOV. FM BOT- TOM MA- TERIAL (UG/G)	NICKEL, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS NI)	SELE- NIUM, TOTAL IN BOT- TOM MA- TERIAL (UG/G)	ZINC, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS ZN)	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PCN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	
OCT 1988 17...	30	3	0.04	<100	<1	20	36	<1.0	1.0	18	
DATE		DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- AZINON, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDO- SULFAN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	ETHION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)
OCT 1988 17...	13	<1.0	<1.0	<0.1	0.2	0.6	<0.1	<0.1	<0.1	0.1	
DATE		LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	MALA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA- THION, TOT. IN BOTTOM MATL. (UG/KG)	METHYL TRI- THION, TOT. IN BOTTOM MATL. (UG/KG)	MIREX, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PARA- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PER- THANE IN BOT- TOM MA- TERIAL (UG/KG)	TOXA- PHENE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	TRI- THION, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
OCT 1988 17...		<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<1.00	<10	<0.1

RESERVOIRS IN RARITAN RIVER BASIN

01396790 SPRUCE RUN RESERVOIR.--Lat 40°38'30", long 74°55'19", Hunterdon County, Hydrologic Unit 02030105, at dam on Spruce Run, 0.5 mi north of Clinton, and 0.6 mi upstream from mouth. DRAINAGE AREA, 41.3 mi². PERIOD OF RECORD, November 1963 to current year. GAGE, water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by earthfill dam with concrete spillway; dam completed in October 1963 with crest of spillway at elevation 273.00 ft. Usable capacity, 11,000,000,000 gal. Dead storage 300,000 gal. Reservoir used for water supply and recreation. Outflow mostly regulated by gates. Water is released to maintain minimum flow on the South Branch Raritan River and, at times, for municipal supply. Records given herein represent usable capacity.

COOPERATION.--Records provided by New Jersey Water Supply Authority.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 11,640,000,000 gal, Apr. 2, 1970, elevation, 274.38 ft; minimum observed, 3,100,000,000 gal, Oct. 18, 1983, elevation, 246.68 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 11,260,000,000 gal, June 24, elevation, 273.53 ft; minimum observed, 6,070,000,000 gal, Sept. 19, elevation, 259.05 ft.

REVISED RECORDS.--WDR NJ-84-1: (M). WDR NJ-85-1: 1984.

01397050 ROUND VALLEY RESERVOIR.--Lat 40°36'39", long 74°50'42", Hunterdon County, Hydrologic Unit 02030105, at main dam on Prescott Brook, 1.8 mi south of Lebanon, 3.2 mi upstream from mouth, and 4.5 mi west of Whitehouse. DRAINAGE AREA, 5.7 mi². PERIOD OF RECORD, March 1966 to current year. Nonrecording gage read daily. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by earthfill dam at main dam on Prescott Brook and two dams on South Branch Rockaway River at Lebanon; storage began in March 1966. Capacity at spillway level, 55,000,000,000 gal, elevation, 385.00 ft. Reservoir is used primarily for storage and is filled by pumping from South Branch Raritan River at Hamden Pumping Station (see following page). Outflow is controlled by operation of gates in pipe in dams. Water is released into South Branch Rockaway Creek and Prescott Brook.

COOPERATION.--Records provided by New Jersey Water Supply Authority.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 55,400,000,000 gal, June 15, 1975, elevation, 385.63 ft; minimum observed (after first filling), 37,100,000,000 gal, Feb. 9, 1981, elevation, 361.30 ft.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 53,960,000,000 gal, June 25, elevation, 383.76 ft; minimum observed, 52,170,000,000 gal, Feb. 13, elevation, 381.55 ft.

REVISED RECORDS.--WDR NJ-85-1: 1984.

MONTHEND ELEVATION AND CONTENTS, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

Date	Elevation (feet)*	Contents (million gallons)	Change in contents (equivalent in ft ³ /s)	Elevation (feet)*	Contents (million gallons)	Change in contents (equivalent in ft ³ /s)
01396790 SPRUCE RUN RESERVOIR				01397050 ROUND VALLEY RESERVOIR		
Sept. 30.....	270.63	10,000	-	382.80	53,200	-
Oct. 31.....	269.22	9,450	-27.5	382.22	52,720	-24.0
Nov. 30.....	272.68	10,870	+73.2	382.36	52,860	+7.2
Dec. 31.....	272.66	10,870	0	381.92	52,520	-17.0
CAL YR 1988....	-	-	+1	-	-	-1.6
Jan. 31.....	272.89	10,960	+4.5	381.76	52,360	-8.0
Feb. 28.....	273.01	11,000	+2.2	381.73	53,330	-1.7
Mar. 31.....	273.15	11,090	+4.5	382.13	52,670	+17.0
Apr. 30.....	272.99	11,000	-4.5	382.32	52,830	+8.3
May 31.....	273.02	11,010	+5	383.36	53,660	+41.4
June 30.....	273.04	11,030	+1.0	383.68	53,890	+11.9
July 31.....	270.85	10,100	-46.4	383.39	53,690	-10.0
Aug. 31.....	266.64	8,500	-79.8	382.83	53,230	-23.0
Sept. 30.....	263.00	7,250	-64.5	383.04	53,440	+10.8
WTR YR 1989....	-	-	-11.7	-	-	+1.0

* Elevation at 0800 on first day of following month.

RARITAN RIVER BASIN

DIVERSIONS IN RARITAN RIVER BASIN

01396920 Water is diverted 4.0 mi upstream from the gaging station on South Branch Raritan River at Stanton (see station 01397000), at the Hamden Pumping Station, for storage in Round Valley Reservoir. Records provided by New Jersey Water Supply Authority.
REVISED RECORDS.--WDR NJ-85-1: 1984.

01400509 Elizabethtown Water Company diverts water from the Raritan and Millstone Rivers just upstream from the mouth of the Millstone River at Manville. Records given herein represent the total diversion from both rivers. Records provided by the Elizabethtown Water Company.

01400836 Water is diverted from Carnegie Lake (Millstone River) at Princeton to the Delaware and Raritan Canal at the aqueduct 2.3 mi upstream from the gaging station on the Delaware and Raritan Canal at Kingston (station 01460500). Negative discharge indicates flow from Canal to Carnegie Lake. Records provided by New Jersey Water Supply Authority.
REVISED RECORDS.--WDR NJ-85-1: 1984.

01402910 Water is diverted from the Raritan River just below the Millstone River to the Delaware and Raritan Canal at Ten Mile Lock for municipal supply. Negative discharge indicates flow from Canal to Millstone River. Records provided by the New Jersey Water Supply Authority.
REVISED RECORDS.--WDR NJ-85-1: 1984.

01460570 Elizabethtown Water Company diverts water from the Delaware and Raritan Canal 1200 ft downstream from Ten Mile Lock at Manville for municipal supply. Records provided by the Elizabethtown Water Company.

DIVERSIONS, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

MONTH	01396920 HAMDEN PUMPING STATION	01400509 RARITAN AND MILLSTONE RIVERS	01400836 CARNEGIE LAKE	01402910 TEN MILE LOCK DIVERSION	01460570 DELAWARE AND RARITAN CANAL
October.....	0	137	0	-18.6	30.8
November.....	0	135	-10.5	-34.0	22.2
December.....	0	142	0	-38.6	19.5
CAL YR 1988.....	0	151	-.9	-33.2	21.3
January.....	0	143	0	-27.1	20.5
February.....	0	154	0	-5.9	3.6
March.....	0	152	0	-35.0	4.8
April.....	0	149	0	-31.4	10.5
May.....	0	158	-76.0	6.5	3.2
June.....	0	164	-40.2	14.4	4.1
July.....	0	170	0	-32.5	1.1
August.....	0	170	0	-32.5	1.2
September.....	0	158	0	-47.5	14.7
WTR YR 1989.....	0	153	-10.6	-23.5	11.4

01407500 SWIMMING RIVER NEAR RED BANK, NJ

LOCATION.--Lat 40°19'10", long 74°06'55", Monmouth County, Hydrologic Unit 02030104, on left bank 50 ft upstream from spillway at Swimming River Reservoir, 3.3 mi southwest of Red Bank, and 4.8 mi upstream from mouth. Water-quality samples collected at bridge on Swimming River Road, 800 ft downstream from gaging station.

DRAINAGE AREA.--49.2 mi².

PERIOD OF RECORD.--August 1922 to current year.

REVISED RECORDS.--WDR NJ-83-1. Drainage area. WSP 891: 1939.

GAGE.--Water-stage recorder above concrete dam. Datum of gage is 30.00 ft above National Geodetic Vertical Datum of 1929. Prior to Jan. 19, 1962, at site 800 ft upstream at datum 17.67 ft lower. Jan. 19 to Mar. 30, 1962, nonrecording gage, 700 ft upstream at datum 13.87 ft lower.

REMARKS.--Records fair above 10 ft³/s and poor below. Records given herein represent flow over spillway and flow or leakage through blowoff gates. Diversion above station for municipal supply. Flow regulated by Swimming River Reservoir. Several measurements of water temperature were made during the year.

COOPERATION.--Water-stage recorder inspected by and record of diversion furnished by New Jersey-American Water Co.

EXTREMES OUTSIDE PERIOD OF RECORD.--A flood in July 1919 reached a stage of 7.84 ft (site and datum then in use), from floodmark, discharge about 11,800 ft³/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	12	99	46	49	20	70	22
2	.00	.00	.00	.00	.00	12	48	256	39	15	48	18
3	.00	.00	.00	.00	.00	11	40	133	32	11	38	14
4	.00	.00	.00	.00	.00	10	39	58	50	9.1	35	10
5	.00	.00	.00	.00	.00	11	36	54	43	588	29	8.4
6	.00	.00	.00	.00	.00	21	61	179	143	502	24	7.6
7	.00	.00	.00	.00	.00	33	52	100	150	110	22	6.7
8	.00	.00	.00	.00	.00	28	156	50	93	106	25	5.6
9	.00	.00	.00	.00	.00	25	79	43	98	59	21	4.6
10	.00	.00	.00	.00	.00	24	48	329	609	36	18	3.5
11	.00	.00	.00	.00	.00	25	36	743	144	30	152	2.3
12	.00	.00	.00	.00	.00	30	32	194	61	26	769	1.7
13	.00	.00	.00	.00	.00	29	31	101	115	37	553	1.3
14	.00	.00	.00	.00	.00	26	33	78	78	48	176	2.1
15	.00	.00	.00	.00	.00	26	42	67	59	33	102	17
16	.00	.00	.00	.00	.00	23	257	483	142	40	115	33
17	.00	.00	.00	.00	.00	19	97	556	177	374	63	104
18	.00	.00	.00	.00	.00	17	52	280	272	101	40	43
19	.00	.00	.00	.00	.00	39	44	127	86	53	40	247
20	.00	.00	.00	.00	.00	32	37	92	54	174	43	473
21	.00	.00	.00	.00	.00	53	34	75	57	327	35	255
22	.00	.00	.00	.00	.01	43	31	62	90	103	32	78
23	.00	.00	.00	.00	.92	31	28	73	113	65	36	47
24	.00	.00	.00	.00	3.0	99	27	176	64	44	36	35
25	.00	.00	.00	.00	4.5	370	26	136	46	36	26	33
26	.00	.00	.00	.00	5.9	91	28	78	38	32	22	219
27	.00	.00	.00	.00	9.0	51	29	147	35	33	18	115
28	.00	.00	.00	.00	10	41	26	170	31	702	15	50
29	.00	.00	.00	.00	---	32	28	74	30	118	15	38
30	.00	.00	.00	.00	---	31	58	51	26	52	37	34
31	.00	---	.00	.00	---	94	---	51	---	65	29	---
MEAN	.00	.00	.00	.00	1.19	44.8	54.5	163	101	127	86.6	64.3
MAX	.00	.00	.00	.00	10	370	257	743	609	702	769	473
MIN	.00	.00	.00	.00	.00	10	26	43	26	9.1	15	1.3
(†)	28.3	53.2	41.4	46.6	62.5	44.8	54.5	163	101	127	86.6	64.3
MEAN*	28.3	53.2	41.4	46.6	63.7	89.0	93.0	201	120	175	130	111

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	40.8	58.4	70.1	79.3	94.1	103	94.3	71.5	50.1	43.5	39.3	40.6
MEAN	40.8	58.4	70.1	79.3	94.1	103	94.3	71.5	50.1	43.5	39.3	40.6
MAX	163	208	196	248	201	184	209	183	135	187	128	210
(WY)	1944	1973	1978	1978	1979	1984	1980	1984	1972	1938	1955	1938
MIN	.00	.00	.00	.00	1.19	18.1	2.93	4.07	.00	.00	.00	.00
(WY)	1971	1981	1981	1981	1989	1985	1962	1985	1985	1966	1957	1980

NAVESINK RIVER BASIN

01407500 SWIMMING RIVER NEAR RED BANK, NJ--Continued

SUMMARY STATISTICS	FOR 1989 WATER YEAR		FOR PERIOD OF RECORD	
AVERAGE FLOW	54.0	Unadjusted	65.3	Unadjusted
AVERAGE*	96.9		80.7	
HIGHEST ANNUAL MEAN			122	1928
LOWEST ANNUAL MEAN			9.76	1985
HIGHEST DAILY MEAN	769	Aug 12	3050	Oct 27 1943
LOWEST DAILY MEAN	.00	Oct 1	.00	Apr 29 1925
INSTANTANEOUS PEAK FLOW	2040	Jul 5	8910a	Oct 27 1943
INSTANTANEOUS PEAK STAGE	6.33	Jul 5	8.96	Oct 27 1943
INSTANTANEOUS LOW FLOW	0	Many days	0	Many days
ANNUAL RUNOFF (INCHES)	27.13	Unadjusted	22.60	Unadjusted
10 PERCENTILE	135		127	
50 PERCENTILE	22		49	
95 PERCENTILE	.00		.00	

a From rating curve extended above 1,000 ft³/s on basis of weir formula, site and datum then in use.

† Diversion and change in contents, in cubic feet per second, from Swimming River Reservoir.

* Adjusted for change in contents.

01407705 SHARK RIVER NEAR NEPTUNE CITY, NJ

LOCATION.--Lat 40°11'56", long 74°04'14", Monmouth County, Hydrologic Unit 02030104, on left bank 100 ft upstream from bridge on Remsen Mill Road, 0.3 mi downstream from Robins Swamp Brook, and 1.7 mi west of Neptune City.

DRAINAGE AREA.--9.96 mi².

WATER-DISCHARGE RECORDS

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

GAGE.--Water-stage recorder, crest-stage gage, and concrete control. Datum of gage is 7.05 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except for estimated daily discharges, which are fair. Diversion above station by New Jersey American Water Co. for municipal supply (records given herein) and by farmers for irrigation. Several measurements of water temperature were made during the year.

COOPERATION.--Water-stage recorder inspected by and records of diversion provided by New Jersey-American Water Co.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.07	34	8.6	e4.5	8.7	e9.9	26	13	8.0	4.3	9.3	e10
2	.29	17	7.1	e4.6	e6.2	e9.6	15	140	7.2	3.7	6.6	e7.0
3	2.3	12	6.5	e4.3	e6.3	e9.6	15	44	5.7	3.0	5.8	e6.0
4	2.2	7.3	6.3	e4.3	e6.3	e10	18	19	9.6	2.8	4.9	e5.6
5	1.2	4.2	6.3	e3.5	e6.2	11	17	20	8.1	e197	4.0	5.6
6	1.7	4.4	6.0	e4.1	e6.1	19	26	43	32	e75	4.6	5.5
7	3.0	8.4	5.8	e4.1	e6.0	10	21	27	21	17	8.5	5.3
8	9.5	5.4	5.5	e9.5	e5.9	8.4	78	15	18	15	6.5	5.3
9	3.3	6.3	5.6	20	e5.7	9.7	31	11	22	6.5	4.4	5.3
10	3.9	6.7	4.6	14	e5.4	11	22	172	40	6.9	4.0	5.6
11	2.4	6.9	4.6	13	e5.2	14	18	305	17	5.7	111	5.3
12	2.1	6.6	3.4	18	e5.1	15	16	60	9.6	4.7	143	5.2
13	3.8	6.1	3.3	17	e5.0	14	16	31	17	12	96	5.2
14	4.0	12	3.4	13	e5.5	13	16	28	13	9.4	79	14
15	4.5	8.5	3.2	24	e6.2	13	25	25	11	5.9	46	20
16	4.5	7.4	3.2	17	e6.9	13	75	83	42	18	48	25
17	4.6	25	3.2	14	e6.6	12	30	132	72	151	21	82
18	4.7	12	3.1	13	e6.1	15	22	61	58	31	13	24
19	4.9	9.1	3.0	10	e5.8	15	19	26	23	10	12	99
20	4.4	35	3.0	5.6	e5.7	10	12	17	12	29	11	68
21	15	32	4.7	4.6	e23	21	10	12	10	59	9.0	29
22	97	15	6.8	4.2	e46	8.7	5.9	e14	11	21	11	22
23	9.8	9.6	6.5	4.1	27	9.1	8.4	e20	9.9	13	21	13
24	6.0	8.4	8.6	4.6	15	83	9.5	e34	8.4	13	14	11
25	4.9	7.3	8.2	5.2	10	144	10	e23	7.0	13	12	10
26	4.6	6.7	6.1	4.5	9.8	36	12	e15	6.7	9.1	12	103
27	4.2	8.4	7.6	2.6	9.5	21	9.4	e15	9.3	5.6	12	40
28	4.4	56	e5.0	1.8	9.1	15	7.5	14	6.0	7.0	12	19
29	4.6	20	e7.2	6.3	---	12	10	13	5.8	5.6	18	11
30	4.2	12	e4.9	12	---	15	31	10	5.1	4.8	55	9.9
31	4.2	---	e4.8	10	---	31	---	8.9	---	13	22	---
MEAN	7.30	13.7	5.36	8.95	9.65	20.6	21.1	46.8	17.5	24.9	27.0	22.6
MAX	97	56	8.6	24	46	144	78	305	72	197	143	103
MIN	.07	4.2	3.0	1.8	5.0	8.4	5.9	8.9	5.1	2.8	4.0	5.2
(†)	7.4	7.6	7.8	7.7	5.8	3.4	2.1	6.5	7.7	7.0	7.0	7.7

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
MEAN	9.29	13.6	17.7	16.4	16.0	21.6	20.9	17.1	9.92	10.9
MAX	28.1	31.7	44.2	41.1	32.9	50.2	48.3	46.8	21.9	30.1
(WY)	1980	1978	1970	1978	1979	1984	1983	1989	1975	1984
MIN	2.81	1.73	4.11	3.57	3.79	6.53	6.39	3.51	2.13	3.47
(WY)	1982	1982	1981	1981	1974	1986	1985	1986	1986	1988

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

	1989	1989	1989	1989	1989	1989	1989	1989	1989	1989
AVERAGE FLOW	18.9	14.2	Unadjusted							
†	6.5	---	---							
HIGHEST ANNUAL MEAN		24.9	1984							
LOWEST ANNUAL MEAN		6.80	1981							
HIGHEST DAILY MEAN	170	560	Dec 26 1969							
LOWEST DAILY MEAN	.24	.00	Sep 20 1981							
INSTANTANEOUS PEAK FLOW	520	1010	Aug 10 1987							
INSTANTANEOUS PEAK STAGE	5.46	7.84	Dec 26 1969							
INSTANTANEOUS LOW FLOW	.00	.00	Many days							
10 PERCENTILE	24	29								
50 PERCENTILE	7.3	8.2								
95 PERCENTILE	1.1	1.6								

e Estimated

† Diversion, equivalent in cubic feet per second, from Shark River by New Jersey-American Water Company, for municipal supply.

SHARK RIVER BASIN

01407705 SHARK RIVER NEAR NEPTUNE CITY, NJ--Continued

WATER-QUALITY RECORDS

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

COOPERATION.--Field data and samples for laboratory analyses provided by New Jersey Department of Environmental Protection, Division of Water Resources. Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988 12...	1200	3.2	172	7.4	11.0	10.0	91	<0.1	80	49
FEB 1989 14...	1145	E5.5	364	7.2	5.0	14.2	111	E2.0	50	130
MAR 02...	1200	8.4	211	7.2	3.0	15.2	113	<1.0	<20	2
JUN 14...	0930	15	166	6.4	15.0	8.2	82	2.4	1100	>2400
JUL 19...	1100	8.4	158	6.7	16.0	8.6	87	E1.8	230	920
AUG 31...	1130	22	146	6.5	19.0	8.6	93	E2.2	3500	920

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988 12...	49	16	2.1	9.8	2.4	24	24	17	0.1
FEB 1989 14...	49	16	2.1	44	3.6	16	29	75	0.1
MAR 02...	45	14	2.4	16	4.8	10	32	27	0.1
JUN 14...	41	13	2.1	12	3.3	8.0	28	18	0.1
JUL 19...	33	10	2.0	10	2.8	8.0	24	15	0.1
AUG 31...	34	10	2.1	11	4.4	10	23	16	0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988 12...	13	99	0.010	0.36	0.10	0.20	0.56	0.02	2.2
FEB 1989 14...	11	190	0.006	0.36	0.27	0.68	1.0	0.13	4.7
MAR 02...	12	114	0.004	0.95	0.17	0.29	1.2	0.08	2.4
JUN 14...	9.7	91	0.020	1.18	0.24	0.90	2.1	0.12	8.2
JUL 19...	10	79	0.016	0.43	0.14	0.66	1.1	0.06	8.3
AUG 31...	10	83	0.019	0.75	0.17	0.92	1.7	0.11	9.0

SHARK RIVER BASIN

8227

01407705 SHARK RIVER NEAR NEPTUNE CITY, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SULFIDE TOTAL (MG/L AS S)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE)	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)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1988 12...	1200	<0.5	30	1	<10	<10	<1	1	16
JUN 1989 14...	0930	<0.5	160	<1	<10	60	<1	<1	4

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	PHENOLS TOTAL (UG/L)
OCT 1988 12...	1300	<5	70	<0.10	<1	<1	20	2
JUN 1989 14...	5300	4	80	0.20	5	<1	60	7

01407760 JUMPING BROOK NEAR NEPTUNE CITY, NJ

LOCATION.--Lat 40°12'13", long 74°03'58" Monmouth County, Hydrologic Unit 02030104, on left bank 50 ft downstream from dam on Jumping Brook Reservoir, 0.8 mi upstream from mouth, and 1.4 mi west of Neptune City. Water-quality samples collected at bridge on Corlies Avenue, 600 ft downstream from gaging station.

DRAINAGE AREA.--6.46 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1966 to current year. Records for water years 1976-83 are unpublished but are available in the files of New Jersey District Office.

REVISED RECORDS.--WDR-84-1: drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 13.76 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those above 70 ft³/s, which are poor. Diversion above station by New Jersey-American Water Co. for municipal supply (records given herein) and by farmers for irrigation. Several measurements of water temperature, other than those published, were made during the year.

COOPERATION.--Water-stage recorder inspected by and records of diversion provided by New Jersey-American Water Co.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.40	22	4.3	e3.4	e3.8	e4.8	e11	13	5.1	2.9	e5.7	4.9
2	e1.2	14	3.8	e3.5	e3.0	e4.5	e6.3	e380	4.9	3.0	e4.2	4.6
3	e5.1	4.3	3.6	e3.3	e3.5	e4.4	e6.8	18	4.7	2.6	e4.4	3.9
4	1.4	3.3	3.3	e3.3	e3.8	e4.3	e7.2	9.3	8.4	2.5	e3.8	3.5
5	1.0	3.8	3.3	e2.6	e3.1	e4.5	e6.4	11	4.8	e260	e3.4	3.4
6	.95	4.6	3.2	e3.2	e3.2	e10	e11	26	19	33	e4.8	3.5
7	1.1	3.4	3.1	e3.4	e3.2	e6.0	e8.0	12	13	8.5	e4.8	3.5
8	11	2.8	3.1	e7.7	e3.0	e4.6	e32	7.7	7.6	15	e3.8	3.2
9	2.8	2.6	3.0	e8.1	e3.0	e4.8	e9.2	6.8	13	6.0	e2.9	3.2
10	1.6	2.6	2.9	e4.6	e2.6	e5.5	e7.2	e410	23	4.7	e2.8	3.2
11	1.4	2.6	2.8	e4.1	e2.6	e6.1	e6.2	e230	6.6	4.1	e38	3.1
12	1.4	2.3	2.4	e6.0	e2.6	e6.5	e6.2	16	4.7	3.6	e84	2.7
13	1.3	5.1	2.5	e7.4	e2.6	e5.7	4.5	8.8	15	e9.1	e50	2.8
14	1.3	5.0	2.6	e4.2	e3.7	e5.3	4.5	6.7	6.9	e7.9	e23	11
15	1.4	3.2	2.8	e11	e4.5	e5.3	11	5.9	7.8	e4.9	e16	12
16	1.8	2.9	2.7	e5.9	e6.4	e5.3	47	141	24	e10	e16	14
17	1.5	17	2.6	e4.9	e3.9	e5.3	11	221	23	e104	e7.7	94
18	1.3	9.5	2.6	e4.2	e3.5	e5.9	7.6	24	25	e12	e5.9	8.5
19	1.5	4.1	2.6	e3.8	e3.1	e10	7.7	13	7.2	e6.7	e5.0	121
20	1.7	34	2.7	e2.8	e3.5	e4.9	6.1	10	5.3	e19	e5.0	26
21	9.6	30	3.3	e2.6	44	e11	5.6	8.2	4.9	e84	e4.4	9.1
22	118	6.5	2.4	e2.4	79	e5.3	5.1	7.3	5.0	e7.5	e5.0	7.2
23	6.5	4.5	4.3	e2.6	39	e4.8	4.6	11	4.8	e7.3	e13	6.2
24	3.7	3.8	6.0	e2.9	e12	e27	4.5	20	4.5	e6.3	e6.7	5.1
25	3.1	3.5	5.3	e3.1	e5.4	e58	4.6	12	4.1	e6.4	e4.7	4.7
26	3.2	3.3	3.5	e2.8	e5.0	e8.9	4.5	7.6	3.8	e4.7	e4.5	160
27	2.6	5.4	2.9	e2.4	e5.1	e7.7	4.3	8.0	7.3	e3.6	e4.2	14
28	2.6	41	3.6	e2.1	e5.0	e6.5	4.1	6.9	4.1	e11	e4.0	7.7
29	2.6	9.8	e5.4	e3.6	---	e5.8	5.8	5.6	3.8	e3.9	10	6.3
30	2.3	5.4	e3.5	e6.0	---	e5.6	27	5.1	3.1	e3.7	e130	5.7
31	1.8	---	e3.6	e5.4	---	e13	---	5.1	---	e8.2	7.3	---
MEAN	6.36	8.74	3.35	4.30	9.40	8.62	9.57	53.8	9.15	21.5	15.6	18.6
MAX	118	41	6.0	11	79	58	47	410	25	260	130	160
MIN	.40	2.3	2.4	2.1	2.6	4.3	4.1	5.1	3.1	2.5	2.8	2.7
(†)	.6	0	0	0	0	0	0	0	0	0	0	0

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	6.11	9.56	11.4	12.7	12.4	14.3	15.3	12.7	7.38	7.32	6.94	6.83
MAX	14.3	47.3	30.5	55.5	62.1	47.1	66.5	53.8	23.7	21.5	15.6	24.2	
(WY)	1972	1978	1970	1979	1979	1984	1980	1989	1972	1989	1989	1971	
MIN	1.97	1.89	2.78	1.94	3.53	3.86	3.29	2.08	2.11	2.44	1.52	1.25	
(WY)	1982	1982	1981	1981	1968	1985	1985	1977	1986	1988	1982	1982	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	14.1	10.2
(†)	.05	
HIGHEST ANNUAL MEAN		20.4
LOWEST ANNUAL MEAN		4.05
HIGHEST DAILY MEAN	410	954
LOWEST DAILY MEAN	.40	.12
INSTANTANEOUS PEAK FLOW	1320	1830a
INSTANTANEOUS PEAK STAGE	6.93	7.00
INSTANTANEOUS LOW FLOW	.00	.00
10 PERCENTILE	21	19
50 PERCENTILE	5.1	4.9
95 PERCENTILE	2.1	1.4

a From rating curve extended above 150 ft³/s.

† Diversion, in cubic feet per second, from Jumping Brook by New Jersey-American Water Co. for municipal supply

e Estimated

01407760 JUMPING BROOK NEAR NEPTUNE CITY, NJ--Continued

WATER-QUALITY RECORDS

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

COOPERATION.--Field data and samples for laboratory analyses provided by New Jersey Department of Environmental Protection, Division of Water Resources. Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988										
12...	1000	1.7	169	8.1	10.5	14.1	127	<0.7	50	79
FEB 1989										
14...	0930	E3.7	260	7.5	4.0	16.2	123	E1.5	<20	<49
MAR										
02...	1030	E4.5	225	7.1	2.5	14.8	108	<1.1	<20	<2
JUN										
14...	1130	6.7	172	6.4	16.5	8.4	86	E1.9	490	1600
JUL										
19...	0930	E6.7	154	5.9	18.0	8.3	88	<1.0	130	1600
AUG										
31...	1030	7.3	124	6.5	19.0	8.3	90	E2.0	5400	1600

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988									
12...	43	12	3.2	10	2.7	10	34	18	0.1
FEB 1989									
14...	36	9.9	2.8	27	2.5	1.0	32	45	0.1
MAR									
02...	39	11	2.8	24	2.5	1.0	36	39	0.1
JUN									
14...	39	12	2.3	13	2.5	6.0	29	21	0.1
JUL									
19...	31	8.9	2.1	11	2.4	5.0	23	16	0.1
AUG									
31...	28	8.1	2.0	10	2.5	3.0	24	14	0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988									
12...	10	96	0.005	0.73	0.16	0.48	1.2	0.13	3.6
FEB 1989									
14...	8.1	128	0.002	1.35	0.20	0.46	1.8	0.04	3.2
MAR									
02...	8.4	124	0.002	1.32	0.27	0.25	1.6	0.04	2.4
JUN									
14...	6.4	90	0.012	0.53	0.20	0.81	1.3	0.06	9.5
JUL									
19...	6.4	73	0.011	0.37	0.11	0.61	0.98	0.05	11
AUG									
31...	6.4	69	0.010	0.71	0.08	0.69	1.4	0.08	8.9

SHARK RIVER BASIN

01407760 JUMPING BROOK NEAR NEPTUNE CITY, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SULFIDE TOTAL (MG/L AS S)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE)	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)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1988 12...	1000	<0.5	<10	1	<10	<10	<1	51	15

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	PHENOLS TOTAL (UG/L)
OCT 1988 12...	15000	7	610	<0.10	6	<1	60	3

01407997 MARSH BOG BROOK AT SQUANKUM, NJ

LOCATION.--Lat 40°10'01", long 74°09'33", Monmouth County, Hydrologic Unit 02040301, at bridge on Squankum-Yellow Brook Road in Squankum, and 0.2 mi upstream from mouth.

DRAINAGE AREA.--4.91 mi².

PERIOD OF RECORD.--Water years 1971-74, 1976 to current year.

COOPERATION.--Field data and samples for laboratory analyses provided by New Jersey Department of Environmental Protection, Division of Water Resources. Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988 04...	1030	1.1E	208	7.3	15.5	6.7	67	E1.1	2400	350
JAN 1989 24...	1130	1.9E	189	7.5	3.0	16.8	125	<0.3	20	540
MAR 21...	1030	12 E	134	5.5	5.5	11.3	91	E1.9	<20	920
JUN 08...	1030	7.0E	107	5.3	17.0	8.3	86	E1.3	220	920
JUL 19...	1230	12 E	80	5.7	18.5	8.7	93	<1.0	170	>2400
AUG 31...	1330	8.8E	73	7.0	19.0	8.8	95	E2.0	790	>2400

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988 04...	62	19	3.5	11	4.2	17	39	22	0.1
JAN 1989 24...	46	14	2.7	8.1	4.3	1.0	44	14	0.1
MAR 21...	34	10	2.2	10	1.8	1.0	42	14	0.2
JUN 08...	22	6.4	1.5	6.3	2.4	1.0	21	10	0.1
JUL 19...	15	4.6	0.95	4.4	1.5	1.0	14	7.7	0.1
AUG 31...	18	5.2	1.1	5.0	3.6	1.0	14	10	0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988 04...	11	120	0.008	0.61	0.22	2.5	3.1	0.03	3.9
JAN 1989 24...	12	100	<0.003	0.59	0.32	0.46	1.0	<0.02	2.0
MAR 21...	8.6	89	0.002	0.86	0.13	0.36	1.2	0.05	3.6
JUN 08...	11	60	0.005	0.23	0.10	0.66	0.89	0.14	10
JUL 19...	9.0	43	0.010	0.97	0.08	0.63	1.6	0.06	14
AUG 31...	10	50	0.007	0.62	0.13	0.71	1.3	0.09	11

01407997 MARSH BOG BROOK AT SQUANKUM, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SULFIDE TOTAL (MG/L AS S)	NITRO- GEN, NH ₄ + ORG. TOT IN BOT MAT (MG/KG AS N)	CARBON, INOR- GANIC, TOT IN BOT MAT (G/KG AS C)	CARBON, INORG + ORGANIC TOT. IN BOT MAT (GM/KG AS C)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC TOTAL IN BOT- TOM MA- TERIAL (UG/G AS AS)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CADMIUM RECOV. FM BOT- TOM MA- TERIAL (UG/G AS CD)
OCT 1988												
04...	1030	--	230	<0.1	3.1	--	--	3	--	--	--	<10
JUN 1989												
08...	1030	<0.5	--	--	--	290	1	--	<10	40	<1	--

DATE	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, RECOV. FM BOTTOM MATERIAL (UG/G AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G)
OCT 1988											
04...	--	7	<50	--	5	--	1900	--	20	--	6
JUN 1989											
08...	3	--	--	4	--	5600	--	3	--	60	--

DATE	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY RECOV. FM BOT- TOM MA- TERIAL (UG/G AS HG)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	NICKEL, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	SELE- NIUM, TOTAL IN BOT- TOM MA- TERIAL (UG/G)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, RECOV. FM BOT- TOM MA- TERIAL (UG/G AS ZN)	PHENOLS TOTAL (UG/L)	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)	PCN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG)
OCT 1988											
04...	--	0.02	--	<100	--	<1	--	20	--	<1	<1.0
JUN 1989											
08...	<0.10	--	7	--	<1	--	30	--	1	--	--

[illegible][illegible]

01408000 MANASQUAN RIVER AT SQUANKUM, NJ

LOCATION.--Lat 40°09'47", Long 74°09'21", Monmouth County, Hydrologic Unit 02040301, on right bank 50 ft upstream from northbound bridge on State Highway 547 (Squankum Park Road) in Squankum, and 0.4 mi downstream from Marsh Bog Brook.

DRAINAGE AREA.--44.0 mi².

PERIOD OF RECORD.--July 1931 to current year. Monthly discharge only for July 1931, published in WSP 1302.

REVISED RECORDS.--WDR NJ-83-1: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 18.82 ft above National Geodetic Vertical Datum of 1929. Prior to Aug. 13, 1940, water-stage recorder at site 80 ft upstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Diversion by New Jersey-American Water Company at Hospital Road, 1.2 mi downstream (records given herein). Several measurements of water temperature were made during the year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	73	57	31	38	53	120	65	61	48	78	54
2	18	87	49	31	35	49	75	269	57	46	63	50
3	21	38	45	30	40	47	70	137	52	44	65	45
4	20	30	42	29	43	45	70	92	66	42	58	41
5	20	30	40	26	35	45	65	87	53	294	54	40
6	17	37	39	30	35	82	97	215	130	624	51	41
7	17	27	38	30	36	70	81	124	100	155	50	40
8	38	26	34	51	33	55	184	89	81	129	48	39
9	23	24	32	67	33	52	105	77	86	82	44	38
10	19	23	31	44	31	55	80	314	273	65	41	37
11	19	24	31	38	30	60	69	735	101	58	122	35
12	18	22	28	52	30	64	64	221	72	52	378	35
13	18	24	28	70	29	58	61	154	111	82	353	34
14	18	39	28	44	40	55	63	124	87	79	162	47
15	18	26	29	87	48	54	64	108	75	57	136	83
16	18	24	29	62	68	51	216	431	158	67	154	60
17	18	62	31	47	45	48	112	492	197	332	112	116
18	18	63	30	42	39	50	86	293	224	137	94	67
19	18	36	29	40	37	96	80	167	100	93	77	241
20	18	125	30	38	36	56	69	133	78	177	69	911
21	26	149	32	35	190	91	62	113	114	862	62	260
22	182	65	38	32	239	70	58	97	212	167	59	149
23	41	50	34	32	129	57	55	94	263	119	122	123
24	31	43	44	33	84	132	52	155	104	94	92	101
25	32	38	46	33	66	324	52	129	81	82	61	79
26	30	32	36	33	59	122	52	101	72	73	56	249
27	29	33	33	34	63	89	50	125	65	65	50	151
28	27	247	34	32	55	76	48	122	59	197	48	96
29	26	107	44	31	---	68	49	87	58	87	50	82
30	24	69	33	45	---	62	91	77	52	65	146	73
31	22	---	32	49	---	104	---	66	---	92	67	---
MEAN	27.8	55.8	35.7	41.2	58.8	75.5	80.0	177	108	147	97.5	114
MAX	182	247	57	87	239	324	216	735	273	862	378	911
MIN	17	22	28	26	29	45	48	65	52	42	41	34
IN.	.73	1.41	.94	1.08	1.39	1.98	2.03	4.64	2.74	3.86	2.55	2.89
(†)	2.7	0	0	0	.2	2.1	0	0	1.4	0	1.4	0

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	50.7	71.7	82.7	89.6	99.1	113	102	80.3	58.4	53.9	50.7	52.6
MAX	130	231	212	218	214	221	218	177	126	200	108	183	
(WY)	1972	1978	1978	1979	1979	1984	1983	1989	1968	1938	1948	1938	
MIN	22.1	22.3	26.4	30.7	43.6	47.2	40.3	38.8	26.6	19.9	16.7	16.7	
(WY)	1964	1966	1966	1981	1932	1985	1985	1955	1957	1966	1932	1932	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	85.1	75.3
(†)	.65	---
HIGHEST ANNUAL MEAN		130
LOWEST ANNUAL MEAN		40.5
HIGHEST DAILY MEAN	911	1720
LOWEST DAILY MEAN	17	14
INSTANTANEOUS PEAK FLOW	1530	2940
INSTANTANEOUS PEAK STAGE	8.97	12.45
INSTANTANEOUS LOW FLOW	17	8.1
ANNUAL RUNOFF (INCHES)	26.26	23.23
10 PERCENTILE	158	133
50 PERCENTILE	57	55
95 PERCENTILE	22	23

† Diversion, equivalent in cubic feet per second, by New Jersey-American Water Company, for municipal supply.

METEDECONK RIVER BASIN

01408120 NORTH BRANCH METEDECONK RIVER NEAR LAKEWOOD, NJ

LOCATION.--Lat 40°05'30", long 74°09'10", Ocean County, Hydrologic Unit 02040301, on upstream right bank at bridge on State Route 549, 1.0 mi upstream from confluence with South Branch Metedeconk River, and 2.3 mi east of Lakewood.

DRAINAGE AREA.--34.9 mi².

PERIOD OF RECORD.--October 1972 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 3.89 ft above National Geodetic Vertical Datum of 1929. Prior to Nov. 17, 1977, gage located on upstream left side of bridge. Nov. 17, 1977 to Dec. 19, 1984, gage located on the downstream side of bridge.

REMARKS.--Records good. Several measurements of water temperature were made during the year. Satellite telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	47	59	28	36	41	86	63	46	30	49	36
2	14	84	42	29	32	38	66	165	50	28	40	34
3	18	61	36	29	32	36	55	190	42	27	37	31
4	19	37	34	27	38	35	50	106	39	26	36	30
5	17	33	32	25	33	34	47	79	38	124	36	29
6	15	39	31	26	31	53	67	102	80	385	37	30
7	15	31	31	30	31	63	66	110	87	190	34	29
8	32	27	30	42	29	e53	120	93	81	119	34	28
9	29	25	29	61	27	e44	104	70	76	73	29	28
10	19	24	28	47	26	42	76	170	82	48	27	28
11	16	24	27	39	27	43	57	514	75	39	92	27
12	16	23	27	40	24	46	49	286	75	35	133	27
13	15	25	27	52	24	46	45	177	66	55	205	26
14	15	36	26	44	31	44	45	113	57	72	241	43
15	15	30	26	60	41	41	50	75	57	52	159	68
16	15	26	27	64	53	40	122	189	85	54	125	56
17	15	47	26	48	43	37	109	384	113	185	73	114
18	15	68	27	39	35	39	83	330	116	156	55	62
19	15	46	27	35	31	60	69	197	88	95	50	110
20	15	77	26	32	29	50	59	126	68	75	47	341
21	23	129	28	30	78	58	51	81	52	75	44	370
22	143	89	34	29	153	57	47	67	55	97	41	170
23	122	58	32	31	146	48	43	63	60	89	81	101
24	56	40	41	28	e94	83	40	89	71	61	77	65
25	32	34	47	27	e71	177	40	98	56	45	58	49
26	25	31	38	28	49	145	40	81	44	39	44	120
27	23	32	32	29	47	93	39	69	39	35	39	152
28	21	113	31	27	43	64	38	64	36	35	37	98
29	21	110	36	26	---	49	38	61	35	34	38	72
30	20	80	32	34	---	47	71	54	32	33	40	52
31	20	---	29	46	---	77	---	49	---	41	38	---
MEAN	27.4	50.9	32.2	36.5	47.6	57.5	62.4	139	63.4	79.1	67.0	80.9
MAX	143	129	59	64	153	177	122	514	116	385	241	370
MIN	14	23	26	25	24	34	38	49	32	26	27	26
IN.	.91	1.63	1.06	1.21	1.42	1.90	2.00	4.60	2.03	2.61	2.21	2.59

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	43.9	63.5	76.2	77.1	75.0	82.1	87.5	68.5	51.2	46.6	38.9	40.4
MEAN	43.9	63.5	76.2	77.1	75.0	82.1	87.5	68.5	51.2	46.6	38.9	40.4
MAX	71.8	141	129	153	153	160	153	139	89.6	107	67.0	80.9
(WY)	1980	1973	1978	1979	1979	1984	1984	1989	1984	1984	1989	1989
MIN	24.4	26.1	32.2	25.2	42.7	38.8	35.8	27.1	26.0	21.7	15.2	17.8
(WY)	1982	1982	1989	1981	1980	1981	1985	1977	1986	1988	1981	1988

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	62.1	62.5
HIGHEST ANNUAL MEAN		91.5
LOWEST ANNUAL MEAN		34.7
HIGHEST DAILY MEAN	514	838
LOWEST DAILY MEAN	14	11
INSTANTANEOUS PEAK FLOW	598	1370a
INSTANTANEOUS PEAK STAGE	7.44	9.28
INSTANTANEOUS LOW FLOW	13	11
ANNUAL RUNOFF (INCHES)	24.16	24.32
10 PERCENTILE	116	116
50 PERCENTILE	44	48
95 PERCENTILE	20	20

a From rating curve extended above 600 ft³/s

e Estimated

01408500 TOMS RIVER NEAR TOMS RIVER, NJ
(National stream quality accounting network station)

LOCATION.--Lat 39°59'10", long 74°13'29", Ocean County, Hydrologic Unit 02040301, on left bank 500 ft downstream of bridge on State Route 527 (Oak Ridge Parkway), 1.9 mi downstream from Union Branch, and 2.6 mi northwest of Toms River.

DRAINAGE AREA.--123 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1928 to current year. Monthly discharge only for October, November 1928, published in WSP 1302.

REVISED RECORDS.--WSP 1702: 1938. WDR NJ-76-1: 1975(M). WDR NJ-77-1: 1976.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 8.10 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Diversions by Ciba-Geigy Inc., 800 ft. upstream; the effluent is returned by pipeline directly into the Atlantic Ocean, thus bypassing station. Several measurements of water temperature, other than those published, were made during the year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	59	108	283	121	140	177	214	196	200	139	160	132
2	60	148	241	120	132	168	227	277	224	132	161	127
3	70	153	192	118	131	160	239	310	225	125	171	120
4	70	150	170	117	137	154	222	346	212	122	167	116
5	70	134	153	108	136	150	207	360	198	219	155	113
6	67	130	142	108	131	167	213	347	216	402	155	114
7	65	124	136	122	129	187	217	345	250	413	145	113
8	82	115	128	128	125	191	267	369	273	507	139	111
9	85	107	122	146	119	182	277	359	293	413	136	110
10	78	100	119	156	112	172	236	421	283	291	131	108
11	73	99	115	151	109	167	258	551	267	209	169	107
12	68	96	109	146	109	169	228	623	269	174	308	105
13	68	97	106	156	107	171	202	672	257	206	462	103
14	66	103	103	158	114	170	189	554	223	267	589	111
15	70	104	103	171	130	169	188	448	205	280	556	124
16	68	101	105	178	152	185	244	396	241	302	456	152
17	70	111	107	180	155	197	257	421	266	394	354	210
18	67	141	106	169	148	178	292	501	285	377	269	186
19	63	148	107	158	138	178	287	537	276	385	218	272
20	63	177	108	146	131	181	245	487	256	368	198	533
21	69	220	111	136	165	190	220	403	252	322	186	1180
22	182	236	117	124	226	190	201	321	214	304	179	898
23	177	250	124	121	262	191	188	275	208	314	167	606
24	179	219	134	120	312	214	176	285	220	288	162	451
25	169	179	149	118	300	271	168	297	213	235	158	331
26	131	158	151	118	234	279	162	325	190	197	146	335
27	110	144	145	119	202	319	159	327	180	178	137	353
28	100	219	138	118	187	301	155	294	166	163	129	373
29	95	243	135	116	---	246	154	255	157	157	128	387
30	91	266	133	120	---	218	187	236	147	151	141	330
31	85	---	126	136	---	239	---	215	---	154	140	---
MEAN	89.4	153	136	136	160	198	216	379	229	264	218	277
MAX	182	266	283	180	312	319	292	672	293	507	589	1180
MIN	59	96	103	108	107	150	154	196	147	122	128	103
IN.	.84	1.39	1.28	1.27	1.35	1.85	1.96	3.55	2.08	2.48	2.05	2.51

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	155	202	225	244	255	292	284	248	190	161	158	154
MEAN	155	202	225	244	255	292	284	248	190	161	158	154
MAX	325	475	447	506	455	541	573	461	463	439	345	414
(WY)	1972	1973	1973	1978	1973	1958	1984	1958	1968	1938	1967	1971
MIN	83.3	85.5	96.1	104	141	143	120	119	96.8	77.3	57.9	69.7
(WY)	1942	1966	1966	1981	1934	1985	1985	1977	1977	1988	1966	1943

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	205	214
HIGHEST ANNUAL MEAN		335
LOWEST ANNUAL MEAN		130
HIGHEST DAILY MEAN	1180	1910
LOWEST DAILY MEAN	59	47
INSTANTANEOUS PEAK FLOW	1330	2000a
INSTANTANEOUS PEAK STAGE	10.15	12.50b
INSTANTANEOUS LOW FLOW	56	46
ANNUAL RUNOFF (INCHES)	22.61	23.59
10 PERCENTILE	346	358
50 PERCENTILE	169	187
95 PERCENTILE	77	83

a From rating curve extended above 1,500 ft³/s

b From floodmark

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1963 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: November 1974 to September 1981 (discontinued).

WATER TEMPERATURE: November 1963 to May 1966, November 1974 to September 1981 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

WATER QUALITY DATA

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CACO3)
NOV 1988												
29...	1130	242	80	4.3	8.5	7.0	10.1	85	1.8	>30	740	14
JAN 1989												
31...	1130	135	--	5.2	6.5	3.1	11.9	--	0.7	8	83	13
MAR												
28...	1130	305	76	4.4	12.0	1.5	9.6	89	1.9	K5	150	11
MAY												
30...	1130	238	67	4.6	17.5	2.0	8.1	84	1.0	44	2400	10
JUL												
25...	1215	235	63	4.0	21.5	2.0	8.8	99	0.7	270	--	9
SEP												
22...	1100	895	63	4.0	21.0	2.4	5.9	66	0.9	>240	500	8

DATE	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)	BICAR- BONATE IT-FLD (MG/L AS HCO3)	ALKA- LINITY, CARBON- ATE IT-FLD (MG/L AS CACO3)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)
NOV 1988												
29...	3.2	1.4	4.8	1.1	--	--	<1	21	8.1	0.1	4.6	--
JAN 1989												
31...	2.9	1.3	5.8	1.3	0.6	0.5	1	16	9.3	<0.1	5.1	45
MAR												
28...	2.6	1.1	4.7	1.0	--	--	<1	9.5	8.1	0.1	3.8	--
MAY												
30...	2.2	0.98	5.2	1.0	--	--	<1	9.0	8.8	0.1	3.9	--
JUL												
25...	2.0	0.88	4.5	0.9	--	--	<1	7.0	9.6	<0.1	5.0	33
SEP												
22...	1.8	0.74	3.0	0.9	--	--	<1	7.0	6.4	<0.1	3.7	--

DATE	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHOROUS TOTAL (MG/L AS P)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P)
NOV 1988											
29...	15	9.8	91	<0.010	0.200	0.110	0.130	0.60	0.020	<0.010	<0.010
JAN 1989											
31...	7	2.6	24	<0.010	0.550	0.190	0.190	0.30	0.010	0.010	<0.010
MAR											
28...	12	9.9	76	<0.010	0.160	0.040	0.040	0.30	0.010	<0.010	0.050
MAY											
30...	11	7.1	74	<0.010	0.330	0.140	0.160	0.70	0.020	<0.010	0.010
JUL											
25...	6	3.8	95	<0.010	0.230	0.140	0.140	0.70	0.030	<0.010	<0.010
SEP											
22...	18	43	40	0.010	<0.100	0.020	0.010	0.60	0.020	0.010	<0.010

01408500 TOMS RIVER NEAR TOMS RIVER, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

WATER QUALITY DATA

DATE	TIME	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)
JAN 1989 31...	1130	160	<1	32	<0.5	<1	<1	<3	6	290	<5
MAR 28...	1130	270	<1	35	<0.5	<1	<1	<3	1	360	24
JUL 25...	1215	230	1	22	<0.5	<1	<1	<3	3	860	4
SEP 22...	1100	360	1	28	<0.5	<1	1	<3	3	980	7
DATE		LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
JAN 1989 31...		<4	43	<0.1	<10	3	<1	<1.0	20	<6	22
MAR 28...		<4	42	1.0	<10	5	<1	<1.0	17	<6	27
JUL 25...		<4	32	0.4	<10	1	<1	<1.0	14	<6	20
SEP 22...		<4	42	<0.1	<10	2	<1	<1.0	15	<6	28

MULLICA RIVER BASIN

01409387 MULLICA RIVER AT OUTLET OF ATSION LAKE, AT ATSION, NJ

LOCATION.--Lat 39°44'25", Long 74°43'37", Burlington County, Hydrologic Unit 02040301, at bridge on U.S. Route 206 in Atsion, at outlet of Atsion Lake, and 0.2 mi upstream from Wesickaman Creek.

DRAINAGE AREA.--26.7 mi².

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

COOPERATION.--Field data and samples for laboratory analyses provided by New Jersey Department of Environmental Protection, Division of Water Resources. Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988 31...	1030	E17	41	5.4	8.0	8.8	73	<0.7	<20	<2
JAN 1989 24...	1045	E34	68	5.6	3.0	12.0	89	<1.1	<20	5
APR 03...	1000	E75	64	5.1	8.5	9.8	84	<0.8	<20	<2
JUN 12...	1045	E68	38	4.8	21.5	7.4	84	E2.3	50	22
JUL 17...	1330	E81	46	5.3	20.5	7.2	80	<0.5	20	17
AUG 08...	1315	E60	44	4.2	23.0	5.8	68	<1.0	330	920

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988 31...	8	1.9	0.88	2.4	0.8	1.0	13	6.1	<0.1
JAN 1989 24...	9	2.1	1.0	3.3	0.9	<1.0	15	5.6	0.1
APR 03...	7	1.7	0.78	3.2	0.8	<1.0	18	6.2	<0.1
JUN 12...	5	1.1	0.55	2.5	0.6	<1.0	6.0	5.5	<0.1
JUL 17...	5	1.1	0.59	2.5	0.7	<1.0	3.0	6.8	0.1
AUG 08...	6	1.2	0.61	2.4	0.7	<1.0	3.0	4.8	0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988 31...	3.7	29	0.004	0.14	0.08	0.56	0.70	0.05	2.0
JAN 1989 24...	4.6	--	<0.003	0.28	<0.05	0.39	0.67	0.03	5.3
APR 03...	2.6	--	0.001	0.17	<0.05	0.35	0.52	0.03	6.5
JUN 12...	3.9	--	0.004	0.24	0.06	0.79	1.0	0.05	13
JUL 17...	4.9	--	0.013	0.23	0.11	0.86	1.1	0.06	18
AUG 08...	4.9	--	0.024	0.27	0.06	0.92	1.2	0.05	29

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

MULLICA RIVER BASIN

01409400 MULLICA RIVER NEAR BATSTO, NJ

LOCATION.--Lat 39°40'28", long 74°39'55", Atlantic County, Hydrologic Unit 02040301, on right bank 2.4 mi upstream from Sleeper Branch, and 2.5 mi north of Batsto.

DRAINAGE AREA.--46.7 mi².

PERIOD OF RECORD.--September 1957 to current year.

REVISED RECORDS.--WRD-NJ 1969: 1958(M), 1960(M), 1967-68(M), WDR NJ-83-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 11.93 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except for estimated daily discharges, which are poor. Some regulation from upstream cranberry bogs and Atsion Lake. Diversions from Sleeper Branch enter river upstream of gage. Several measurements of water temperature were made during the year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	41	133	e52	e60	122	178	158	134	72	119	57
2	21	50	120	e52	e56	111	164	216	120	68	124	56
3	22	50	107	e53	e60	101	147	273	106	65	102	54
4	24	49	95	e52	70	93	138	231	89	61	86	52
5	24	49	86	e50	71	89	130	209	75	72	85	50
6	23	46	80	e46	72	96	143	254	95	85	83	48
7	22	43	75	e48	70	109	157	289	117	116	98	47
8	24	41	70	e52	66	105	212	268	125	144	122	46
9	24	39	67	e59	61	103	235	272	136	167	110	45
10	23	37	64	e62	58	101	219	335	172	155	86	44
11	21	38	62	e59	57	101	209	504	159	96	82	43
12	21	36	58	e60	55	102	190	509	137	67	119	42
13	21	36	48	e64	53	100	170	523	129	84	134	42
14	19	36	44	e66	59	102	153	336	132	122	146	46
15	19	35	46	e74	64	100	142	309	131	129	162	60
16	20	34	44	e85	72	98	168	325	139	85	186	69
17	19	45	45	e90	72	94	170	349	119	151	174	87
18	19	51	46	e89	71	91	160	322	139	202	149	84
19	19	50	e45	e87	71	95	161	302	146	187	136	127
20	18	70	e44	e78	70	91	158	281	134	224	141	246
21	22	87	e46	e72	91	101	145	250	121	539	133	312
22	43	88	e48	e71	136	106	135	219	112	458	120	369
23	37	82	e48	e70	169	103	124	180	111	496	110	325
24	35	79	e52	e66	169	116	115	178	107	363	90	216
25	35	75	e62	e63	165	189	109	254	102	287	69	141
26	34	69	e65	e58	159	213	107	230	102	226	69	179
27	32	64	e60	e56	152	202	86	198	98	170	68	220
28	31	110	e58	e54	136	202	66	199	92	171	66	208
29	38	156	e57	e54	---	188	77	188	84	165	64	216
30	38	158	e55	e56	---	172	129	162	77	142	66	199
31	33	---	e55	e59	---	177	---	147	---	119	60	---
MEAN	26.1	61.5	64.0	63.1	88.0	122	150	273	118	177	108	124
MAX	43	158	133	90	169	213	235	523	172	539	186	369
MIN	18	34	44	46	53	89	66	147	75	61	60	42

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	66.9	91.4	121	138	143	157	153	127	80.0	73.4	73.3	62.7
MAX	192	305	304	311	292	312	358	273	159	177	253	223	
(WY)	1976	1973	1973	1978	1979	1958	1983	1989	1979	1989	1958	1975	
MIN	24.1	22.0	29.8	29.3	71.3	59.1	50.3	53.6	32.3	21.9	20.2	19.4	
(WY)	1966	1966	1966	1981	1981	1985	1985	1965	1977	1977	1977	1980	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	115	107
HIGHEST ANNUAL MEAN		168
LOWEST ANNUAL MEAN		50.4
HIGHEST DAILY MEAN	539	1630
LOWEST DAILY MEAN	18	7.5
INSTANTANEOUS PEAK FLOW	579	1840
INSTANTANEOUS PEAK STAGE	4.11	6.14
INSTANTANEOUS LOW FLOW	18	7.0
10 PERCENTILE	218	205
50 PERCENTILE	90	87
95 PERCENTILE	26	26

e Estimated

01409416 HAMMONTON CREEK AT WESCOATVILLE, NJ

LOCATION.--Lat 39°38'02", Long 74°43'05", Atlantic County, Hydrologic Unit 02040301, at bridge on Chestnut Road in Wescoatville, 1.1 mi southwest of Nesco, 1.7 mi upstream from Norton Branch, and 3.8 mi southwest of Batsto.

DRAINAGE AREA.--9.57 mi², revised.

PERIOD OF RECORD.--Water years 1974 to current year.

COOPERATION.--Field data and samples for laboratory analyses provided by New Jersey Department of Environmental Protection, Division of Water Resources. Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, EC BROTH (MPN)	STREP- TOCOCCI FECAL (MPN)
OCT 1988										
31...	1245	E 4.6	123	6.3	7.5	5.8	48	3.1	<20	350
JAN 1989										
24...	1330	E13	158	6.8	4.0	8.4	64	5.8	<20	240
APR										
03...	1130	E42	128	6.6	9.0	5.9	51	2.6	<20	5
JUN										
13...	1045	E34	96	6.2	18.5	4.4	47	3.5	130	350
JUL										
17...	1200	E88	87	6.4	19.0	4.2	45	<0.4	3500	>2400
AUG										
07...	1040	E15	124	6.0	22.0	3.2	37	E1.8	120	110

DATE	HARD- NESS TOTAL (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)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT 1988									
31...	21	4.8	2.1	14	3.3	6.0	16	13	0.1
JAN 1989									
24...	26	6.4	2.5	14	3.9	24	17	14	<0.1
APR									
03...	26	6.4	2.4	8.1	3.5	12	18	12	0.1
JUN									
13...	22	5.5	2.1	11	3.6	7.0	14	13	0.2
JUL									
17...	16	3.8	1.5	3.4	3.0	2.0	9.0	6.2	0.1
AUG									
07...	22	5.4	2.0	11	3.4	10	11	--	0.1

DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHOROUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988									
31...	7.0	64	0.079	3.31	0.82	1.6	4.9	0.98	7.9
JAN 1989									
24...	8.3	80	0.042	2.03	3.85	4.4	6.4	0.94	9.2
APR									
03...	5.7	63	0.024	1.67	1.63	2.3	3.9	0.45	6.2
JUN									
13...	6.9	61	0.054	1.63	1.12	2.4	4.0	0.47	7.3
JUL									
17...	3.5	32	0.013	1.00	0.09	0.90	1.9	0.22	12
AUG									
07...	6.5	--	0.103	1.22	0.33	1.2	2.4	0.44	7.4

MULLICA RIVER BASIN

01409416 HAMMONTON CREEK AT WESCOATVILLE, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

[illegible]

01409500 BATSTO RIVER AT BATSTO, NJ

LOCATION.--Lat 39°38'33", long 74°39'00", Burlington County, Hydrologic Unit 02040301, on right bank 30 ft downstream from bridge on State Highway 542 at Batsto, and 1.0 mi upstream from mouth.

DRAINAGE AREA.--67.8 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1927 to current year. Monthly discharge only for April to September 1939, published in WSP 1302.

REVISED RECORDS.--WSP 1432: 1930, 1933, 1936, 1938. WDR NJ-83-1: Drainage area. WDR-87-1: 1939 (M).

GAGE.--Water-stage recorder. Concrete control since Oct. 12, 1939; prior to Mar. 24, 1939, wooden control at site 50 ft downstream. Datum of gage is 1.4 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Considerable regulation at times by sluice gates prior to December 1954 and by automatic Bascule and sluice gates since July 1959 at Batsto Lake, 300 ft upstream, capacity, about 60,000,000 gal. Several measurements of water temperature, other than those published, were made during the year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47	65	159	80	89	133	156	149	131	91	111	83
2	48	76	148	80	87	124	168	173	123	88	108	81
3	51	81	132	81	85	118	162	221	117	84	104	78
4	52	76	119	79	91	108	149	264	111	81	98	76
5	54	66	111	75	91	106	146	229	105	89	94	73
6	55	65	103	71	88	111	147	217	111	105	90	72
7	56	62	98	72	88	108	153	247	124	121	101	71
8	51	60	94	78	86	111	179	274	131	132	122	70
9	49	59	92	87	83	113	203	244	136	126	110	70
10	50	59	90	90	81	112	222	249	141	117	102	68
11	50	60	88	87	79	112	205	391	153	105	106	66
12	50	59	86	87	79	114	180	568	146	96	126	64
13	50	60	81	92	77	116	163	472	132	96	143	65
14	48	64	79	94	80	117	151	371	120	105	168	67
15	49	63	78	101	87	115	150	292	114	106	186	77
16	51	61	76	110	94	114	152	243	127	104	194	80
17	49	70	74	118	97	111	161	231	130	131	189	97
18	48	80	72	116	98	109	162	242	144	162	167	101
19	51	84	70	111	94	109	160	250	141	190	140	133
20	52	92	70	106	89	109	153	229	140	226	122	196
21	49	101	72	102	100	115	146	201	131	279	120	377
22	71	110	75	97	122	117	137	176	125	384	115	378
23	82	112	76	96	158	119	128	163	119	384	109	319
24	78	112	82	94	182	125	121	159	122	295	103	240
25	67	109	91	91	174	147	113	172	122	227	102	187
26	63	104	95	85	158	198	110	190	118	178	99	183
27	60	94	89	84	144	211	109	200	113	149	93	195
28	58	119	87	82	143	190	107	184	109	136	91	242
29	57	132	85	81	---	170	106	167	100	127	90	221
30	57	156	82	84	---	157	127	154	94	120	90	187
31	56	---	81	87	---	151	---	143	---	114	88	---
MEAN	55.1	83.7	91.5	90.3	104	128	151	241	124	153	119	141
MAX	82	156	159	118	182	211	222	568	153	384	194	378
MIN	47	59	70	71	77	106	106	143	94	81	88	64
IN.	.94	1.38	1.56	1.54	1.60	2.18	2.48	4.10	2.05	2.61	2.02	2.31

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	87.0	114	125	139	150	170	156	145	105	92.9	101	93.3
MAX		241	307	302	280	361	353	322	279	242	257	332	242
(WY)		1959	1973	1973	1949	1939	1958	1970	1958	1948	1938	1958	1960
MIN		43.9	43.4	48.4	55.6	75.9	79.5	71.8	65.1	50.9	40.6	42.0	44.5
(WY)		1966	1966	1966	1966	1931	1981	1985	1977	1977	1977	1957	1977

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	124	122
HIGHEST ANNUAL MEAN		193
LOWEST ANNUAL MEAN		66.2
HIGHEST DAILY MEAN	568	2000
LOWEST DAILY MEAN	47	5.7
INSTANTANEOUS PEAK STAGE	---	8.7a
ANNUAL RUNOFF (INCHES)	24.75	24.49
10 PERCENTILE	199	208
50 PERCENTILE	109	103
95 PERCENTILE	54	51

a From floodmark

MULLICA RIVER BASIN

01409500 BATSTO RIVER AT BATSTO, NJ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1925, 1956, 1962-63, 1976 to current year.

COOPERATION.--Field data and samples for laboratory analyses provided by New Jersey Department of Environmental Protection, Division of Water Resources. Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988 26...	1200	63E	45	4.8	10.5	9.4	84	<1.1	<20	<2
JAN 1989 18...	1015	115	68	5.3	3.0	12.0	89	<1.0	<20	14
APR 03...	1345	159	56	4.6	9.5	9.4	82	<1.2	<20	4
JUN 12...	1330	145	35	5.0	20.0	6.6	73	E1.9	20	8
JUL 17...	1030	133	58	4.8	18.5	7.4	79	<0.7	220	240
AUG 08...	1115	121	30	5.5	20.0	7.2	79	<1.1	2200	>2400

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988 26...	9	1.9	1.0	2.7	1.1	1.0	12	4.6	<0.1
JAN 1989 18...	11	2.4	1.2	2.6	0.80	<1.0	15	5.1	0.1
APR 03...	10	2.2	0.99	2.6	0.80	<1.0	16	4.9	<0.1
JUN 12...	7	1.6	0.80	2.1	0.80	<1.0	5.0	4.3	0.1
JUL 17...	7	1.4	0.84	2.0	0.60	2.0	3.0	3.0	0.1
AUG 08...	5	1.2	0.60	1.8	0.60	1.0	3.0	4.0	0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988 26...	6.0	30	0.003	0.14	<0.05	0.25	0.39	<0.02	3.6
JAN 1989 18...	5.7	--	0.003	0.30	<0.05	0.21	0.51	0.02	4.1
APR 03...	3.6	--	<0.003	0.21	0.05	0.27	0.48	0.02	5.9
JUN 12...	4.3	--	0.006	0.25	0.06	0.81	1.1	0.05	16
JUL 17...	4.7	17	0.003	0.23	0.05	0.50	0.73	0.04	8.0
AUG 08...	5.1	17	0.026	0.27	0.05	0.55	0.82	0.04	9.8

01409510 BATSTO RIVER AT PLEASANT MILLS, NJ

LOCATION.--Lat 39°37'55", long 74°38'40", Burlington County, Hydrologic Unit 02040301, on right bank, 0.4 mi upstream from Mullica River, and 0.5 mi southeast of Pleasant Mills.

DRAINAGE AREA.--73.6 mi².

PERIOD OF RECORD.--July 1958 to current year. Annual maximum only published for 1958 to 1965.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is -8.6 ft below National Geodetic Vertical Datum of 1929. Gage-height record converted to elevation above or below (-) National Geodetic Vertical Datum of 1929 for publication.

REMARKS.--Summaries for months with short periods of no gage-height record have been estimated with negligible or no loss of accuracy unless otherwise noted. Some periods cannot be estimated and are noted by dash (--) lines.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation recorded, 7.2 ft, Mar. 7, 1962; minimum recorded (1966-87), -0.67 ft, Jan. 2, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum elevation recorded, 4.36 ft, Sept. 19; minimum recorded, -0.04 ft, Dec. 16.

Summaries of tide elevations during year are as follows:

TIDE ELEVATIONS, IN FEET, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
Maximum	Elevation	4.05	3.54	3.31	3.69	3.47	3.77	3.19	4.06	3.30	3.84	3.69	4.36
high tide	Date	21	5	23	7	25	9	8	11	4	16	19	19
Minimum	Elevation	.08	.13	-.04	.07	.04	.28	.32	.61	.43	.37	.67	.52
low tide	Date	15	11	16	6	12	18,19	29	31	4	3	31	13
Mean high tide		2.64	2.48	2.30	2.38	2.43	2.61	2.59	2.94	2.85	2.94	2.92	2.97
Mean water level		1.45	1.40	1.17	1.27	1.34	1.64	1.59	2.15	1.85	2.06	2.03	2.11
Mean low tide		.36	.42	.29	.31	.39	.66	.69	1.34	.78	1.10	1.02	1.16

MULLICA RIVER BASIN

01409810 WEST BRANCH WADING RIVER NEAR JENKINS, NJ

LOCATION.--Lat 39°41'17", Long 74°32'54", Burlington County, Hydrologic Unit 02040301, on right bank 900 ft downstream from Godfrey Bridge on Washington-Jenkins Road, 2.2 mi downstream from Hospitality Brook, and 1.2 mi southwest of Jenkins.

DRAINAGE AREA.--84.1 mi².

PERIOD OF RECORD.--October 1974 to current year.

REVISED RECORDS.--WDR NJ-77-1: 1976. WDR NJ-81-1: 1975(P), 1976(P), 1977(P), 1978(P), 1979(P), 1980(P).

GAGE.--Water-stage recorder. Datum of gage is 10.17 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except for estimated daily discharges, which are poor. Some regulation by cranberry bogs and small ponds. Several measurements of water temperature were made during the year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e43	101	219	73	88	147	206	219	149	86	129	72
2	e45	162	195	78	87	135	197	312	127	79	124	71
3	e46	159	158	77	95	127	190	450	120	76	119	70
4	50	114	128	73	113	118	188	419	110	74	112	67
5	e48	106	115	60	105	115	179	311	101	140	107	61
6	e43	e95	109	67	101	131	239	334	121	326	95	58
7	e44	e80	99	81	99	150	222	395	162	354	97	56
8	e51	127	e90	89	96	141	275	361	183	314	122	55
9	e48	112	e85	92	91	134	259	278	180	254	109	51
10	e44	95	e80	85	86	130	255	345	195	209	103	53
11	e42	84	e75	79	83	128	240	724	189	163	139	52
12	e41	e75	e70	81	82	138	240	694	164	95	292	50
13	e40	e72	e65	92	80	143	219	547	144	122	408	51
14	e39	e70	e60	85	92	135	215	427	128	204	456	51
15	e40	81	e55	107	101	132	200	337	121	191	416	66
16	e41	80	e52	120	111	172	220	288	165	190	370	68
17	e40	92	e46	112	104	140	208	288	187	387	312	121
18	e38	117	e44	106	96	115	194	284	226	434	249	122
19	e38	103	e47	104	93	128	217	249	223	362	211	286
20	e39	126	50	101	90	119	258	222	198	396	194	985
21	e45	163	57	94	126	145	219	196	179	688	150	1040
22	138	161	55	88	198	164	197	177	170	598	122	783
23	120	e140	60	85	212	153	192	160	193	482	112	554
24	98	e120	72	85	196	162	179	179	237	364	103	308
25	e82	e100	86	85	171	282	181	184	225	268	93	192
26	e70	e90	76	85	179	266	176	189	210	208	87	272
27	e62	e80	73	89	171	241	146	210	186	159	79	334
28	e59	205	75	87	159	203	111	243	157	149	75	295
29	e55	289	73	84	---	175	98	222	130	128	72	284
30	e55	241	72	87	---	148	201	197	91	116	79	249
31	e54	---	72	93	---	176	---	174	---	122	76	---
MEAN	54.8	121	84.3	87.9	118	155	204	310	166	250	168	226
MAX	138	289	219	120	212	282	275	724	237	688	456	1040
MIN	38	70	44	60	80	115	98	160	91	74	72	50
IN.	.75	1.61	1.16	1.20	1.46	2.12	2.71	4.25	2.20	3.42	2.31	3.00

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	94.9	122	126	185	173	202	209	188	114	107	99.1	82.4
MEAN	94.9	122	126	185	173	202	209	188	114	107	99.1	82.4
MAX	237	261	270	379	313	389	418	326	210	250	278	226
(WY)	1976	1978	1978	1979	1979	1979	1983	1979	1984	1989	1978	1989
MIN	50.4	69.3	58.7	54.6	102	93.0	98.8	72.1	47.5	29.9	35.6	38.9
(WY)	1983	1979	1981	1981	1977	1985	1985	1986	1986	1977	1977	1982

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	162	142
HIGHEST ANNUAL MEAN	224	1978
LOWEST ANNUAL MEAN	73.9	1985
HIGHEST DAILY MEAN	1040	Sep 21
LOWEST DAILY MEAN	38	Oct 18
INSTANTANEOUS PEAK FLOW	1120	May 11
INSTANTANEOUS PEAK STAGE	14.65	May 11
INSTANTANEOUS LOW FLOW	36	Sep 21
ANNUAL RUNOFF (INCHES)	26.19	22.90
10 PERCENTILE	298	275
50 PERCENTILE	123	106
95 PERCENTILE	47	40

e Estimated

MULLICA RIVER BASIN

247

01409815 WEST BRANCH WADING RIVER AT MAXWELL, NJ
(National stream-quality accounting network station)

LOCATION.--Lat 39°40'30", long 74°32'28", Burlington County, Hydrologic Unit 02040301, at bridge on State Highway 563 in Maxwell, 2.2 mi southeast of Washington, 1.8 mi southwest of Jenkins, and 1.6 mi upstream from confluence with Oswego River.

DRAINAGE AREA.--85.9 mi².

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

REMARKS.--Water-stage recorder located at station 01409810.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)
NOV 1988											
29...	0900	E312	72	3.7	7.5	4.4	8.6	71	1.1	42	440
JAN 1989											
31...	1100	E96	46	4.0	6.5	4.6	10.8	88	0.3	<1	110
MAR											
28...	1215	E206	58	3.8	14.5	1.6	8.8	87	0.4	<1	190
MAY											
30...	1030	E201	47	4.3	18.0	3.5	6.6	69	1.0	K9	180
JUL											
25...	1045	E278	42	4.1	23.0	3.1	5.4	63	--	--	--
SEP											
22...	1015	E814	--	4.1	22.5	3.0	5.8	--	0.9	77	190

DATE	HARD- NESS TOTAL (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)	ALKA- LITY WAT WH TOT FET FIELD MG/L AS CaCO3	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS Cl)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)
NOV 1988										
29...	6	1.1	0.74	2.6	0.7	<1	14	4.1	0.1	4.2
JAN 1989										
31...	4	0.89	0.49	2.3	0.8	<1	9.0	3.8	<0.1	5.8
MAR										
28...	4	0.81	0.56	2.2	0.5	<1	7.9	4.3	0.1	3.4
MAY										
30...	3	0.50	0.31	2.0	0.5	<1	4.0	3.9	<0.1	4.0
JUL										
25...	2	0.45	0.30	1.6	0.4	<1*	1.0	4.5	0.1	4.5
SEP										
22...	3	0.56	0.29	1.7	0.5	<1	4.0	4.1	<0.1	3.4

DATE	SEDI- MENT, SUS- PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHOROUS TOTAL (MG/L AS P)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P)
NOV 1988										
29...	5	95	<0.010	<0.100	0.060	0.050	0.30	0.020	<0.010	<0.010
JAN 1989										
31...	4	75	<0.010	<0.100	<0.010	0.020	<0.20	<0.010	<0.010	<0.010
MAR										
28...	14	60	<0.010	<0.100	0.010	0.020	<0.20	<0.010	<0.010	<0.010
MAY										
30...	18	89	<0.010	<0.100	0.010	0.040	0.40	0.020	<0.010	<0.010
JUL										
25...	36	57	<0.010	<0.100	0.040	0.030	2.1	0.020	<0.010	<0.010
SEP										
22...	13	86	<0.010	<0.100	0.010	0.010	0.60	0.020	<0.010	<0.010

* Laboratory determination

MULLICA RIVER BASIN

01409815 WEST BRANCH WADING RIVER AT MAXWELL, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)
JAN 1989 31...	1100	210	<1	22	<0.5	<1	<1	<3	<1	380	<5
MAR 28...	1215	220	<1	23	<0.5	<1	<1	<3	2	440	13
JUL 25...	1045	260	2	8	<0.5	1	1	<3	1	1500	--
SEP 22...	1015	250	1	12	<0.5	<1	2	<3	4	1300	4

DATE	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)	ZINC, DIS- SOLVED (UG/L AS ZN)
JAN 1989 31...	<4	18	<0.1	<10	3	<1	<1.0	8	<6	25
MAR 28...	<4	17	<0.1	<10	6	<1	<1.0	8	<6	25
JUL 25...	<4	11	<0.1	<10	1	<1	<1.0	3	<6	15
SEP 22...	<4	14	0.2	<10	1	<1	<1.0	5	<6	25

01410000 OSWEGO RIVER AT HARRISVILLE, NJ

LOCATION.--Lat 39°39'47", long 74°31'26", Burlington County, Hydrologic Unit 02040301, on right bank 50 ft downstream from bridge on State Highway Spur 563 at Harrisville, and 0.5 mi upstream from confluence with West Branch Wading River.

DRAINAGE AREA.--72.5 mi².

PERIOD OF RECORD.--October 1930 to current year. Monthly discharge only for some periods, published in WSP 1302. Prior to October 1955, published as "East Branch Wading River at Harrisville".

REVISED RECORDS.--WDR NJ-83-1: Drainage area.

GAGE.--Water-stage recorder. Concrete control since June 23, 1939. Datum of gage is 4.62 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except for estimated daily discharges, which are fair. Figures given herein represent flow over main spillway and through bypass channel. Flow regulated by Harrisville Pond 200 ft above station, capacity, about 30,000,000 gal and by ponds and cranberry bogs 5 to 10 mi upstream. Flow probably reduced by ground-water outflow to nearby surface drainage basins, such as Oyster Creek. Several measurements of water temperature, other than those published, were made during the year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	50	98	45	56	71	117	150	98	66	e86	68
2	36	60	82	45	50	67	109	207	92	60	e82	70
3	35	55	72	44	59	63	100	256	87	56	e79	67
4	36	48	65	43	71	61	94	241	78	42	e75	65
5	35	43	61	38	62	60	91	185	78	100	e73	61
6	33	41	58	43	57	74	104	196	84	133	e77	60
7	33	38	54	50	54	83	106	214	108	157	e94	57
8	37	38	48	57	51	76	148	184	116	135	e100	59
9	35	37	43	58	49	67	153	139	120	99	e84	50
10	32	39	43	56	47	69	132	206	118	95	e75	55
11	31	41	42	51	45	67	116	386	106	80	e120	53
12	31	40	41	52	45	69	103	424	97	67	e198	54
13	30	41	41	56	54	71	97	345	90	82	e234	54
14	30	49	41	56	58	92	92	290	84	102	e249	51
15	30	50	41	67	e60	87	92	241	83	97	e231	54
16	30	47	40	69	62	70	114	238	102	110	e208	60
17	29	73	40	64	61	57	113	268	136	250	e180	94
18	28	86	39	61	58	56	104	243	151	280	e155	95
19	28	65	39	60	53	82	105	184	147	232	e143	229
20	30	82	40	56	51	94	104	142	123	231	e131	624
21	36	89	43	52	74	79	97	128	102	361	e113	641
22	68	74	44	47	101	76	88	115	103	345	e98	458
23	73	64	45	44	97	68	80	120	121	284	e90	328
24	65	61	49	46	86	87	75	153	130	236	e82	209
25	54	58	53	49	75	138	72	142	105	171	e76	136
26	46	53	50	47	75	146	68	128	100	126	e73	189
27	40	53	47	47	73	114	74	128	91	104	e68	233
28	37	115	50	46	73	95	105	145	85	101	70	196
29	37	139	49	45	---	91	88	132	72	92	69	153
30	36	111	48	59	---	90	147	116	68	85	65	130
31	36	---	46	65	---	104	---	107	---	e82	51	---
MEAN	37.6	61.3	50.1	52.2	62.7	81.4	103	198	102	144	114	155
MAX	73	139	98	69	101	146	153	424	151	361	249	641
MIN	28	37	39	38	45	56	68	107	68	42	51	50
IN.	.60	.94	.80	.83	.90	1.30	1.58	3.16	1.58	2.29	1.81	2.39

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	63.2	82.9	84.7	101	105	117	113	98.1	72.0	67.9	75.2	62.6
MAX	176	234	200	242	210	220	253	253	198	155	201	207	163
(WY)	1959	1973	1973	1979	1939	1958	1970	1989	1984	1938	1933	1938	1938
MIN	28.6	30.8	27.1	33.9	53.2	51.9	41.3	43.9	33.7	24.2	23.9	24.4	24.4
(WY)	1966	1966	1966	1966	1931	1985	1985	1942	1966	1977	1957	1951	1951

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	97.0	86.8
HIGHEST ANNUAL MEAN		138
LOWEST ANNUAL MEAN		41.4
HIGHEST DAILY MEAN	641	1220
LOWEST DAILY MEAN	28	4.0
INSTANTANEOUS PEAK FLOW	711	1390a
INSTANTANEOUS PEAK STAGE	5.97	9.54b
INSTANTANEOUS LOW FLOW	27	0c
ANNUAL RUNOFF (INCHES)	18.17	16.25
10 PERCENTILE	190	153
50 PERCENTILE	75	72
95 PERCENTILE	36	31

a From rating curve extended above 640 ft³/s

b From high-water mark in gage house

c While pond filling

e Estimated

MULLICA RIVER BASIN

01410000 OSWEGO RIVER AT HARRISVILLE, NJ--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1962-63, 1976 to current year.

COOPERATION.--Field data and samples for laboratory analyses provided by New Jersey Department of Environmental Protection, Division of Water Resources. Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988 26...	1000	45	53	4.5	10.5	10.4	93	<0.2	<20	<2
JAN 1989 17...	1100	62	46	4.4	4.0	11.8	90	E1.6	<20	<2
MAR 20...	1230	90	55	4.7	6.5	12.0	97	<1.2	<20	4
MAY 24...	1100	151	53	4.5	17.0	8.4	88	<0.8	50	220
JUL 13...	1015	70	50	4.4	22.5	7.8	90	<7.5	<20	130
AUG 03...	1400	E79	42	4.3	22.5	8.0	93	<1.0	20	79

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988 26...	6	1.3	0.70	3.2	1.0	<1.0	13	5.6	<0.1
JAN 1989 17...	5	1.1	0.64	2.4	0.90	<1.0	11	4.6	<0.1
MAR 20...	5	0.99	0.56	2.6	0.80	<1.0	10	4.3	0.1
MAY 24...	4	0.86	0.43	2.3	0.50	<1.0	6.0	4.2	0.1
JUL 13...	4	1.1	0.37	2.2	0.60	<1.0	5.0	4.0	<0.1
AUG 03...	4	0.77	0.40	2.2	0.50	<1.0	4.0	4.6	0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOROUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988 26...	7.9	--	<0.003	0.10	<0.05	0.22	0.32	<0.02	2.8
JAN 1989 17...	7.6	--	0.004	0.18	0.11	0.23	0.41	<0.02	3.0
MAR 20...	5.4	--	0.003	0.12	0.10	0.20	0.32	0.03	3.6
MAY 24...	3.7	--	0.008	0.18	<0.05	0.45	0.63	0.04	9.0
JUL 13...	6.2	--	0.011	0.19	0.06	0.47	0.66	0.07	8.0
AUG 03...	6.2	--	0.023	0.18	<0.05	0.35	0.53	0.03	11

MULLICA RIVER BASIN

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01410000 OSWEGO RIVER AT HARRISVILLE, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SULFIDE TOTAL (MG/L AS S)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE)	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)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
MAY 1989 24...	1100	<0.5	240	<1	<10	30	<1	1	38

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	PHENOLS TOTAL (UG/L)
MAY 1989 24...	1400	2	20	<0.10	<1	<1	20	2

MULLICA RIVER BASIN

01410150 EAST BRANCH BASS RIVER NEAR NEW GRETN, NJ

LOCATION.--Lat 39°37'23", long 74°26'30", Burlington County, Hydrologic Unit 02040301, on left bank upstream of bridge on Stage Road, 0.7 mi west of Lake Absegami, 2.2 mi north of New Gretna, and 5.3 mi upstream from mouth.

DRAINAGE AREA.--8.11 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Occasional low-flow measurements, water years 1969 to 1974. January 1978 to current year.

REVISED RECORDS.--WDR NJ-81-1: 1978-80(P).

GAGE.--Water-stage recorder. Datum of gage is 1.10 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Some regulation by Lake Absegami. Several measurements of water temperature, other than those published, were made during the year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.9	11	14	10	11	14	26	34	19	14	15	16
2	7.1	14	13	11	10	13	21	38	19	14	14	14
3	9.3	11	13	11	11	13	19	36	18	14	13	13
4	9.6	9.4	13	10	14	13	19	28	17	14	12	13
5	8.8	9.4	13	9.9	12	12	18	24	17	17	12	12
6	7.9	9.5	13	11	11	16	24	28	20	21	16	12
7	7.6	9.1	13	13	11	19	23	26	30	20	26	12
8	8.7	8.8	13	13	10	15	30	23	29	17	24	11
9	8.4	8.7	13	12	9.8	13	28	21	24	14	17	11
10	7.9	8.6	12	11	9.4	13	22	38	22	13	13	11
11	7.4	8.8	12	10	9.3	14	19	58	19	13	33	10
12	7.2	8.6	12	11	9.2	14	18	43	17	12	51	10
13	7.1	8.8	11	12	9.1	15	17	35	16	16	48	10
14	7.1	9.2	12	11	11	15	17	31	16	22	39	10
15	7.1	8.8	12	14	12	16	19	29	17	17	31	11
16	7.1	8.6	11	15	13	15	30	30	28	21	27	12
17	7.1	13	11	12	12	14	26	33	30	49	24	20
18	7.0	16	11	11	10	14	20	31	25	37	22	17
19	7.1	12	11	11	9.9	18	22	28	20	24	23	54
20	7.0	15	11	11	9.8	16	22	25	17	18	22	83
21	8.3	17	11	10	14	19	19	24	17	18	21	42
22	20	13	11	9.9	18	19	17	23	16	18	19	29
23	18	11	11	10	16	16	16	24	18	17	18	23
24	11	10	13	10	15	25	15	28	19	15	17	21
25	9.0	10	13	10	13	38	15	27	17	14	16	19
26	8.4	9.8	12	10	13	29	15	23	16	14	16	33
27	8.2	10	11	10	13	21	14	26	16	13	15	35
28	8.1	22	11	10	14	18	14	28	15	14	15	27
29	8.0	24	11	9.7	---	16	16	24	15	13	18	21
30	7.7	18	10	11	---	18	36	21	15	12	24	19
31	7.6	---	10	12	---	25	---	20	---	14	19	---
MEAN	8.64	11.8	11.9	11.0	11.8	17.3	20.6	29.3	19.5	17.7	21.9	21.0
MAX	20	24	14	15	18	38	36	58	30	49	51	83
MIN	6.9	8.6	10	9.7	9.1	12	14	20	15	12	12	10
IN.	1.23	1.62	1.69	1.57	1.52	2.46	2.83	4.16	2.68	2.52	3.12	2.89

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	1980	1980	1984	1978	1979	1984	1984	1984	1986	1985	1986	1986
MEAN	10.7	12.2	14.2	17.6	17.7	19.6	22.2	20.5	16.0	13.4	12.2	11.3
MAX	19.9	18.1	23.4	35.0	29.8	36.8	38.6	30.3	27.2	25.8	24.6	21.0
(WY)	1980	1980	1984	1978	1979	1984	1984	1984	1986	1985	1986	1989
MIN	8.13	8.75	9.78	9.28	11.4	10.5	9.06	8.95	8.11	7.80	7.97	7.18
(WY)	1983	1982	1986	1981	1981	1981	1985	1985	1986	1985	1986	1986

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	16.9	15.1
HIGHEST ANNUAL MEAN		21.8
LOWEST ANNUAL MEAN		9.60
HIGHEST DAILY MEAN	83	131
LOWEST DAILY MEAN	6.9	6.3
INSTANTANEOUS PEAK FLOW	131	260
INSTANTANEOUS PEAK STAGE	5.58	5.87
INSTANTANEOUS LOW FLOW	6.9	5.6
ANNUAL RUNOFF (INCHES)	28.29	25.24
10 PERCENTILE	28	27
50 PERCENTILE	15	13
95 PERCENTILE	7.8	7.5

01410150 EAST BRANCH BASS RIVER NEAR NEW GRETN, NJ--Continued

WATER-QUALITY RECORDS

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

COOPERATION---Field data and samples for laboratory analyses provided by New Jersey Department of Environmental Protection, Division of Water Resources. Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988 19...	1300	7.1	35	4.9	11.0	7.7	70	<0.3	<20	170
JAN 1989 17...	1330	12	46	4.6	3.5	11.5	86	<1.2	<20	7
MAR 20...	1030	16	49	4.8	5.5	9.8	77	<1.1	<20	5
MAY 24...	1345	28	54	4.7	16.0	7.8	79	<0.3	50	540
JUL 13...	1330	16	38	4.6	22.0	7.6	88	<0.3	20	79
AUG 03...	1100	13	39	4.5	18.0	6.2	66	<0.3	50	540

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988 19...	3	0.48	0.54	2.7	0.70	1.0	5.6	4.9	<0.1
JAN 1989 17...	5	0.75	0.70	2.8	0.70	<1.0	9.1	4.9	<0.1
MAR 20...	6	1.2	0.78	3.9	0.70	<1.0	11	6.1	0.1
MAY 24...	4	0.62	0.49	3.4	0.50	<1.0	5.0	6.4	0.1
JUL 13...	2	0.67	0.13	1.8	0.50	<1.0	4.0	4.0	<0.1
AUG 03...	4	0.81	0.51	2.8	0.50	<1.0	4.0	5.8	<0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988 19...	9.1	25	<0.003	<0.05	<0.05	0.10	--	<0.02	1.9
JAN 1989 17...	7.6	--	<0.003	0.18	0.10	0.15	0.33	0.02	4.9
MAR 20...	6.0	--	<0.003	0.23	<0.05	0.21	0.44	0.02	4.8
MAY 24...	4.3	--	0.007	0.25	0.05	0.28	0.53	0.03	6.6
JUL 13...	5.1	--	0.011	0.20	0.06	0.48	0.68	0.06	7.4
AUG 03...	7.3	--	0.023	0.16	<0.05	0.12	0.28	0.04	4.5

MULLICA RIVER BASIN

01410150 EAST BRANCH BASS RIVER NEAR NEW GRETN, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SULFIDE TOTAL (MG/L AS S)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE)	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)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1988 19...	1300	<0.5	50	<1	<10	<10	<1	<1	2

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	PHENOLS TOTAL (UG/L)
OCT 1988 19...	60	<5	<10	<0.10	2	<1	<10	3

01410784 GREAT EGG HARBOR RIVER NEAR SICKLerville, NJ

LOCATION.--Lat 39°44'02", long 74°57'05", Camden County, Hydrologic Unit 02040302, at bridge on Sicklerville-New Freedom Road (Spur 536), 1.5 mi northeast of Sicklerville, and 2.7 mi upstream of New Brooklyn Lake dam.

DRAINAGE AREA.--15.1 mi².

PERIOD OF RECORD.--Water years 1972 to current year.

COOPERATION.--Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988 05...	1015	E 5.2	148	6.5	12.0	4.8	44	4.1	210	40
FEB 1989 13...	1100	E 8.8	154	6.6	4.0	10.9	82	4.1	--	--
APR 06...	1030	E27	87	5.7	11.5	6.0	56	2.6	170	>2400
JUN 15...	1100	E14	92	6.2	17.5	5.7	61	2.2	20	2400
JUL 24...	1000	E55	63	4.5	21.5	3.4	38	1.7	540	920
AUG 29...	1300	E 9.8	138	6.6	19.5	6.2	68	0.8	80	330

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988 05...	26	6.4	2.4	14	3.6	21	16	12	<0.1
FEB 1989 13...	24	5.7	2.3	15	3.1	17	18	17	0.1
APR 06...	16	4.0	1.5	7.5	2.1	5.0	17	11	0.1
JUN 15...	18	4.5	1.6	8.3	2.4	6.0	9.0	11	0.1
JUL 24...	11	3.0	0.85	4.6	1.9	2.0	5.7	11	0.1
AUG 29...	19	4.8	1.7	10	2.8	10	11	11	0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988 05...	6.9	74	0.088	2.36	0.87	2.2	4.6	0.73	5.3
FEB 1989 13...	6.9	78	0.016	1.30	--	--	--	0.41	6.9
APR 06...	4.5	51	0.011	0.69	0.58	1.5	2.2	0.37	16
JUN 15...	6.5	47	0.027	1.32	0.36	1.1	2.4	0.33	14
JUL 24...	4.4	33	0.018	0.22	0.10	1.1	1.3	0.24	40
AUG 29...	5.0	52	0.005	1.61	0.06	0.82	2.4	0.35	10

GREAT EGG HARBOR RIVER BASIN

01410820 GREAT EGG HARBOR RIVER NEAR BLUE ANCHOR, NJ

LOCATION.--39°40'09", long 74°54'49", Camden County, Hydrologic Unit 02040302, at Williamstown-Winslow Road, 1.9 mi southwest of Blue Anchor, and 2.1 mi downstream from confluence of Fourmile Branch.

DRAINAGE AREA.--37.3 mi².

PERIOD OF RECORD.--Water years 1972 to current year.

COOPERATION.--Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L)	COLI-FORM, FECAL, EC BROTH (MPN)	STREP-TOCOCCI FECAL (MPN)
OCT 1988										
05...	0930	E24	75	6.4	13.0	7.8	74	1.7	170	230
FEB 1989										
13...	1330	E32	87	6.2	4.5	12.9	99	0.7	--	--
APR										
06...	1330	E58	74	6.0	13.0	7.7	74	1.0	540	920
JUN										
08...	1130	E68	66	5.6	19.0	4.9	53	1.9	920	>2400
JUL										
24...	0930	E200	56	4.4	21.5	4.2	47	1.0	46	1600
AUG										
29...	1045	E34	88	6.7	18.5	8.2	88	0.6	70	1300

DATE	HARD-NESS TOTAL (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)	ALKA-LINITY LAB (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1988									
05...	14	3.0	1.7	7.0	2.0	10	13	9.2	<0.1
FEB 1989									
13...	17	3.5	2.0	7.8	1.9	7.0	13	11	0.1
APR									
06...	16	3.5	1.8	6.4	1.6	4.0	24	11	0.1
JUN									
08...	15	3.4	1.5	6.0	1.5	4.0	8.0	9.7	0.1
JUL									
24...	10	2.8	0.84	3.5	1.4	1.0	2.8	11	0.1
AUG									
29...	14	3.0	1.5	6.0	1.6	7.0	6.0	8.8	<0.1

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHOROUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988									
05...	6.8	49	0.004	1.12	0.05	0.36	1.5	0.14	5.1
FEB 1989									
13...	6.4	50	0.010	1.40	--	--	--	0.10	4.3
APR									
06...	4.3	55	0.005	0.78	0.46	0.61	1.4	0.15	11
JUN									
08...	5.0	38	0.017	0.46	0.09	0.96	1.4	0.24	22
JUL									
24...	4.3	27	0.018	0.20	<0.05	0.94	1.1	0.17	27
AUG									
29...	5.6	37	0.005	1.21	0.08	0.52	1.7	0.13	6.8

GREAT EGG HARBOR RIVER BASIN

01411000 GREAT EGG HARBOR RIVER AT FOLSOM, NJ

LOCATION.--Lat 39°35'42", long 74°51'06", Atlantic County, Hydrologic Unit 02040302, on left bank 25 ft upstream from bridge on State Highway 54, 1.0 mi south of Folsom, and 2.0 mi upstream from Pennypot Stream.

DRAINAGE AREA.--57.1 mi².

PERIOD OF RECORD.--September 1925 to current year. Prior to October 1947, published as "Great Egg River at Folsom".

REVISED RECORDS.--WSP 1432: 1928(M), 1933. WDR NJ-83-1: Drainage area.

GAGE.--Water-stage recorder. Concrete control since Nov. 26, 1934. Datum of gage is 53.32 ft above National Geodetic Vertical Datum of 1929. Prior to Mar. 6, 1941, water-stage recorder at site 100 ft downstream at same datum. Mar. 6 to Oct. 5, 1941, nonrecording gage at site 145 ft downstream at datum 0.25 ft higher.

REMARKS.--No estimated daily discharges. Records good. Several measurements of water temperature were made during the year. Satellite rain-gage and gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	41	135	52	61	94	105	104	95	69	108	57
2	28	53	127	52	58	87	105	117	85	64	96	54
3	32	57	106	53	59	81	101	144	77	61	88	52
4	34	56	88	54	65	76	95	169	71	58	80	50
5	39	52	76	53	69	74	91	172	67	72	74	49
6	34	51	70	51	70	75	100	172	79	103	68	49
7	32	48	65	51	68	84	110	193	98	144	68	49
8	32	45	62	53	66	90	138	232	116	185	84	47
9	32	44	60	59	61	89	165	228	131	178	87	46
10	31	42	58	65	57	83	178	229	142	146	76	46
11	30	42	56	67	56	80	162	309	154	115	70	45
12	29	42	54	64	54	82	137	386	153	85	83	44
13	28	41	52	65	53	84	115	358	136	77	100	44
14	28	41	50	68	56	85	99	284	115	101	126	47
15	33	42	50	74	63	84	93	222	96	107	151	65
16	29	42	50	82	71	79	103	191	101	112	167	66
17	28	50	50	90	74	75	111	184	116	140	141	79
18	28	58	49	94	75	72	118	186	134	172	124	90
19	27	60	49	91	70	76	116	177	131	180	113	123
20	27	68	48	77	65	78	111	158	116	176	107	214
21	28	79	50	68	72	84	105	138	100	204	104	344
22	44	84	51	63	96	89	98	119	94	267	101	364
23	54	91	50	62	117	90	89	107	121	471	90	270
24	57	92	53	60	155	95	82	116	166	344	79	198
25	52	83	64	58	161	119	78	127	161	225	71	152
26	45	69	68	57	141	148	74	146	138	161	65	142
27	40	62	65	57	119	174	72	148	117	127	62	158
28	38	88	60	57	104	161	69	137	96	116	59	193
29	38	104	58	56	---	136	69	123	83	123	58	193
30	37	118	56	56	---	114	93	118	75	139	63	162
31	36	---	55	60	---	106	---	108	---	125	61	---
MEAN	34.8	61.5	64.0	63.5	79.9	95.0	106	181	112	150	91.1	116
MAX	57	118	135	94	161	174	178	386	166	471	167	364
MIN	27	41	48	51	53	72	69	104	67	58	58	44
IN.	.70	1.20	1.29	1.28	1.46	1.92	2.07	3.65	2.19	3.03	1.84	2.27

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

MEAN	60.2	79.9	92.6	102	107	120	115	96.2	72.7	63.3	64.6	62.2
MAX	148	213	212	203	228	229	234	199	149	187	182	215
(WY)	1939	1973	1973	1936	1939	1958	1983	1958	1948	1938	1967	1940
MIN	27.8	30.1	35.1	39.3	50.7	60.1	53.9	47.1	34.4	22.1	19.3	25.6
(WY)	1931	1932	1966	1981	1931	1981	1985	1955	1977	1966	1966	1964

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	96.4	86.5
HIGHEST ANNUAL MEAN		133
LOWEST ANNUAL MEAN		44.4
HIGHEST DAILY MEAN	471	1300
LOWEST DAILY MEAN	27	15
INSTANTANEOUS PEAK FLOW	494	1440
INSTANTANEOUS PEAK STAGE	6.19	9.09
INSTANTANEOUS LOW FLOW	27	15
ANNUAL RUNOFF (INCHES)	22.92	20.57
10 PERCENTILE	169	151
50 PERCENTILE	81	74
95 PERCENTILE	34	31

01411110 GREAT EGG HARBOR RIVER AT WEYMOUTH, NJ

LOCATION.--Lat 39°30'50", long 74°46'47", Atlantic County, Hydrologic Unit 02040302, at bridge on U.S. Route 322 in Weymouth, 0.5 mi upstream from Deep Run, and 20.9 mi upstream from mouth.

DRAINAGE AREA.--154 mi².

PERIOD OF RECORD.--Water years 1975 to current year.

COOPERATION.--Analyses of fecal coliform and fecal streptococci by the MPN method, and water-phase nutrients were performed by the New Jersey Department of Health, Division of Laboratories and Epidemiology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L)	COLI- FORM, FECAL, EC BROTH (MPN)	STREP- TOCOCCI FECAL (MPN)
OCT 1988 05...	0900	E 95	51	5.9	14.5	8.7	85	1.7	40	140
FEB 1989 13...	1300	E150	57	6.0	3.5	12.4	92	0.5	--	--
APR 10...	1030	E500	69	4.0	10.0	8.8	79	0.9	94	63
JUN 19...	1100	E375	55	5.0	22.5	6.0	69	1.0	350	920
JUL 24...	0900	E600	53	4.2	22.0	5.0	57	1.5	350	1600
AUG 24...	1215	E230	56	5.3	23.0	7.2	84	--	280	>2400

DATE	HARD- NESS TOTAL (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)	ALKA- LINITY LAB (MG/L AS CaCO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS Cl)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT 1988 05...	10	2.0	1.1	4.8	1.4	4.0	7.8	7.1	<0.1
FEB 1989 13...	13	2.4	1.7	5.0	1.2	2.0	12	8.2	0.1
APR 10...	11	2.3	1.2	4.6	1.1	<1.0	23	8.6	0.1
JUN 19...	9	2.0	0.90	4.1	1.0	2.0	5.0	7.9	0.1
JUL 24...	8	1.9	0.74	2.9	1.0	<1.0	<1.0	10	0.1
AUG 24...	9	2.0	1.0	4.0	1.2	1.0	3.0	9.1	0.1

DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRITE TOTAL (MG/L AS N)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHOROUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
OCT 1988 05...	6.4	33	<0.003	0.20	<0.05	0.22	0.42	0.03	3.2
FEB 1989 13...	6.6	38	0.004	0.69	0.10	0.50	1.2	0.03	3.9
APR 10...	3.7	--	<0.003	0.20	<0.05	0.50	0.70	0.06	13
JUN 19...	5.6	28	0.006	0.20	0.16	0.84	1.0	0.08	20
JUL 24...	4.4	--	0.016	0.10	<0.05	0.83	0.93	0.07	32
AUG 24...	6.6	28	0.008	0.27	<0.05	0.84	1.1	0.12	18

GREAT EGG HARBOR RIVER BASIN

01411110 GREAT EGG HARBOR RIVER AT WEYMOUTH, NJ--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	SULFIDE TOTAL (MG/L AS S)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE)	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)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)
OCT 1988 05...	0900	<0.5	40	<1	<10	40	<1	2	9

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	PHENOLS TOTAL (UG/L)
OCT 1988 05...	510	<5	20	<0.10	6	<1	30	<1

01411300 TUCKAHOE RIVER AT HEAD OF RIVER, NJ

LOCATION.--Lat 39°18'25", long 74°49'15", Cape May County, Hydrologic Unit 02040302, on right bank at highway bridge on State Route 49, 0.2 mi upstream from McNeals Branch, 0.4 mi southeast of Head of River, and 3.7 mi west of Tuckahoe.

DRAINAGE AREA.--30.8 mi².

PERIOD OF RECORD.--December 1969 to current year.

REVISED RECORDS.--WDR NJ-78-1: 1975(M), 1976(M).

GAGE.--Water-stage recorder, wooden control, and downstream tidal crest-stage gage. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records fair. Occasional regulation by ponds above station. There is a fish gate in the left control. Fish gate open Apr. 6 to May 16. Several measurements of water temperature were made during the year.

REVISIONS.--Maximum discharge of 129 ft³/s for water year 1986 occurred on Mar. 14 and Apr. 17 and supercede the dates published in the 1986 report.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989, MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	23	57	23	29	43	113	158	51	38	42	47
2	11	31	44	24	27	43	102	151	46	36	39	36
3	17	28	37	23	27	40	83	150	43	34	34	32
4	20	23	33	23	31	39	79	124	40	32	31	31
5	19	21	30	22	30	39	70	99	38	34	29	30
6	15	20	29	25	28	48	84	94	46	46	28	29
7	13	19	28	34	28	76	91	95	58	82	29	29
8	14	18	27	33	28	67	109	85	72	89	38	28
9	14	18	27	30	26	51	114	72	71	66	36	28
10	13	18	26	28	25	46	93	99	74	51	32	27
11	12	18	26	26	24	46	71	187	67	42	35	26
12	12	18	25	29	24	48	57	177	55	36	52	26
13	12	18	24	34	24	51	51	148	47	38	68	26
14	12	19	24	31	38	50	47	117	43	57	62	28
15	12	19	24	38	48	49	53	94	42	60	51	32
16	12	18	23	46	45	48	84	88	47	58	45	35
17	12	27	23	40	39	44	92	111	72	114	47	54
18	12	41	22	34	34	41	74	116	84	129	46	68
19	12	42	22	31	31	49	72	109	76	102	52	88
20	13	41	22	30	30	48	80	92	59	75	61	212
21	15	47	22	28	36	56	70	76	49	57	56	188
22	32	48	23	27	52	66	58	65	44	49	49	135
23	33	39	23	26	59	56	51	59	44	45	43	96
24	27	32	25	26	51	75	46	62	104	40	37	70
25	21	29	28	26	44	135	43	70	131	37	34	55
26	18	27	26	26	40	122	42	68	98	35	31	83
27	17	27	25	26	41	88	40	68	69	34	30	132
28	16	51	24	25	42	65	38	76	54	32	29	114
29	16	93	24	25	---	55	41	72	47	30	42	87
30	16	85	24	27	---	53	131	65	42	29	83	69
31	15	---	23	31	---	82	---	57	---	35	76	---
MEAN	15.9	31.9	27.1	28.9	35.0	58.7	72.6	100	60.4	53.0	44.1	64.7
MAX	33	93	57	46	59	135	131	187	131	129	83	212
MIN	11	18	22	22	24	39	38	57	38	29	28	26
IN.	.60	1.16	1.01	1.08	1.18	2.20	2.63	3.75	2.19	1.98	1.65	2.34

STATISTICS OF MONTHLY FLOW DATA FOR PERIOD OF RECORD, BY WATER YEAR (WY)

	MEAN	26.2	35.4	43.4	52.6	57.3	65.2	69.8	57.7	42.5	29.7	25.3	23.1
MAX	55.1	81.4	94.3	101	101	144	174	111	83.7	53.0	55.6	64.7	
(WY)	1972	1973	1973	1978	1973	1979	1983	1983	1984	1989	1971	1989	
MIN	15.1	18.1	19.4	16.0	28.7	30.9	21.3	20.0	14.8	12.7	10.6	7.04	
(WY)	1978	1975	1981	1981	1977	1985	1985	1977	1977	1988	1988	1980	

SUMMARY STATISTICS

FOR 1989 WATER YEAR

FOR PERIOD OF RECORD

AVERAGE FLOW	49.4	43.9
HIGHEST ANNUAL MEAN		64.3
LOWEST ANNUAL MEAN		22.4
HIGHEST DAILY MEAN	212	464
LOWEST DAILY MEAN	11	1.3
INSTANTANEOUS PEAK FLOW	240	510
INSTANTANEOUS PEAK STAGE	5.28	7.01a
INSTANTANEOUS LOW FLOW	10.	---
ANNUAL RUNOFF (INCHES)	21.78	19.34
10 PERCENTILE	93	85
50 PERCENTILE	41	34
95 PERCENTILE	16	14

a Tide affected

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are usable in low-flow or floodflow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Records collected at partial-record stations are presented in two tables. The first is a table of annual maximum stage and discharge at crest-stage stations, and the second is a table of discharge measurements at low-flow partial record stations.

Crest-stage partial-record stations

The following table contains annual maximum discharges for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower stages may have been obtained, and discharge measurements may have been made for purposes of establishing the stage-discharge relation, but these are not published herein. The years given in the period of record represent water years for which the annual maximum has been determined. The gage heights are heights on the upstream side of the bridge, above the dam or at the discontinued continuous-record gaging station unless otherwise noted.

Annual maximum discharge at crest-stage partial-record stations during water year 1989

Station No.	Station name	Location	Drainage area (mi ²)	Period of record	Annual Maximum		
					Date	Gage height (ft)	Discharge (ft ³ /s)
Hackensack River basin							
*01378385	Tenakill Brook at Closter, NJ	Lat 40°58'29", long 73°58'06", Bergen County, Hydrologic Unit 02030103, at bridge on High Street in Closter, 0.7 mi upstream from mouth. Datum of gage is 23.85 ft above National Geodetic Vertical Datum of 1929.	8.56	1965-89	5-17-89	b3.21	910
*01378590	Metzler Brook at Englewood, NJ	Lat 40°54'29", long 73°59'13", Bergen County, Hydrologic Unit 02030103, at bridge on Lantana Avenue in Englewood, and 1.6 mi upstream from mouth. Datum of gage is 43.10 ft above National Geodetic Vertical Datum of 1929.	1.54	1965-89	7-05-89	b2.04	200
Passaic River basin							
01378690	Passaic River near Bernardsville, NJ	Lat 40°44'03", long 74°32'26", Somerset County, Hydrologic Unit 02030103, at bridge on U.S. Route 202, 1.8 mi northeast of Bernardsville, and 3.0 mi upstream from Great Brook. Datum of gage is 238.07 ft above National Geodetic Vertical Datum of 1929.	8.83	1968-76†, 1977-89	9-20-89	b13.12	502
01379845	Rockaway River at Warren Street, at Dover, NJ	Lat 40°53'08", long 74°33'36", Morris County, Hydrologic Unit 02030103, on left bank, 100 ft upstream from bridge on Warren Street, in Dover, 4.0 mi west of Denville and 6 mi south-east of Lake Hopatcong. Datum of gage is 561.83 ft above National Geodetic Vertical Datum of 1929.	52.1	1981-89	5-17-89	5.10	1,030
01387880	Pond Brook at Oakland, NJ	Lat 41°01'36", long 74°14'04", Bergen County, Hydrologic Unit 02030103, at bridge on NJ Route 208 in Oakland, 0.2 mi upstream from former site at Franklin Avenue (prior to October 1975), 0.6 mi upstream from mouth, and 1.5 mi northwest of Franklin Lakes. Datum of gage is 276.97 ft above National Geodetic Vertical Datum of 1929.	6.76	1968-71, 1976-89	5-17-89	c	e320

Annual maximum discharge at crest-stage partial-record stations during water year 1989--Continued

Station No.	Station name	Location	Drainage area (mi ²)	Period of record	Annual Maximum		
					Date	Gage height (ft)	Discharge (ft ³ /s)
Passaic River basin--Continued							
01389030	Preakness (Singac) Brook near Preakness, NJ	Lat 40°56'55", long 74°13'25", Passaic County, Hydrologic Unit 02030103, at bridge on Ratzer Road, 1.0 mi north of Preakness, and 2.0 mi upstream from Naachtpunkt Brook. Datum of gage is 230.8 ft above National Geodetic Vertical Datum of 1929.	3.24	1979-89	7-26-89	4.04	560
01389534	Peckman River at Ozone Avenue, at Verona, NJ	Lat 40°50'42", long 74°14'09", Passaic County, Hydrologic Unit 02030103, at bridge on Ozone Avenue in Verona, 4.0 mi west of Clifton and 1.0 mi southwest of Cedar Grove Reservoir. Datum of gage is 300.08 ft above National Geodetic Vertical Datum of 1929.	4.45	1945, 1979-89	9-20-89	b4.95	1,790
01389765	Molly Ann Brook at North Haledon, NJ	Lat 40°57'11", long 74°11'07", Passaic County, Hydrologic Unit 02030103, at bridge on Overlook Avenue in North Haledon, 1.5 mi west of Hawthorne and 0.5 mi upstream from Oldham Pond Dam. Datum of gage is 209.68 ft above National Geodetic Vertical Datum of 1929.	3.89	1945, 1979-89	9-20-89	6.74	820
01389900	Fleischer Brook at Market Street, at Elmwood Park, NJ	Lat 40°53'57", long 74°06'54", Bergen County, Hydrologic Unit 02030103, at culvert on Market Street in Elmwood Park (formerly East Paterson), and 2.0 mi upstream from mouth. Datum of gage is 35.31 ft above National Geodetic Vertical Datum of 1929.	1.37	1967-89	7-26-89	2.57	147
*01390450	Saddle River at Upper Saddle River, NJ	Lat 41°03'32", long 74°05'44", Bergen County, Hydrologic Unit 02030103, at culvert on Lake Street in Upper Saddle River, and 1.3 mi downstream from Pine Brook. Datum of gage is 186.11 ft above National Geodetic Vertical Datum of 1929.	10.9	1966-89	9-20-89	b4.04	1,100
01390810	Hohokus Brook at Allendale, NJ	Lat 41°01'37", long 74°08'44", Bergen County, Hydrologic Unit 02030103, at bridge on Brookside Avenue in Allendale, and 0.2 mi downstream from Valentine Brook. Datum of gage is 277.46 ft above National Geodetic Vertical Datum of 1929.	9.11	1969-89	9-20-89	5.68	455
01390900	Ramsey Brook at Allendale, NJ	Lat 41°01'44", long 74°08'07", Bergen County, Hydrologic Unit 02030103, at bridge on Brookside Avenue in Allendale and 0.6 mi upstream from Hohokus Brook. Datum of gage is 270.79 ft above National Geodetic Vertical Datum of 1929.	2.55	1975-89	9-20-89	b2.71	220
01392000	Weasel Brook at Clifton, NJ	Lat 40°52'12", long 74°08'47", Passaic County, Hydrologic Unit 02030103, at upstream side of bridge on Jewett Street, at Clifton, 1.3 mi downstream of US Route 46 bridge, and 1.3 mi northwest of Passaic. Datum of gage is 68.52 ft above National Geodetic Vertical Datum of 1929.	4.45	1937-62†, 1963-78, 1989	6-26-89	7.73	1,780
01392170	Third River at Bloomfield, NJ	Lat 40°47'59", long 74°11'18", Essex County, Hydrologic Unit 02030103, on downstream left wingwall of bridge on entrance ramp at Interchange 148 to the Garden State Parkway in Bloomfield 0.6 mi west of Nutley, and 5.1 mi upstream from Passaic River.	7.71	1988-89	7-05-89	b6.08	a

Annual maximum discharge at crest-stage partial-record stations during water year 1989--Continued

Station No.	Station name	Location	Drainage area (mi ²)	Period of record	Annual Maximum		
					Date	Gage height (ft)	Discharge (ft ³ /s)
Raritan River basin							
01392500	Second River at Belleville, NJ	Lat 40°47'17", long 74°10'19", Essex County, Hydrologic Unit 02030103, on Mill Street in Branch Brook Park at Belleville, 300 ft downstream from Franklin Avenue, and 1,100 ft downstream from Hendricks Pond dam. Datum of gage is 62.6 ft above National Geodetic Vertical Datum of 1929.	11.6	1937-64†, 1963-89	7-05-89	7.63	3,840
01397500	Walnut Brook near Flemington, NJ	Lat 40°30'55", long 74°52'52", Hunterdon County, Hydrologic Unit 02030105, bank 1.2 mi northwest of Flemington, and 2.3 mi upstream from mouth. Datum of gage is 267.33 ft above National Geodetic Vertical Datum of 1929.	2.24	1936-61†, 1963-89	9-20-89	3.50	760
01398045	Back Brook tributary near Ringoes, NJ	Lat 4°25'41", long 74°49'52", Hunterdon County, Hydrologic Unit 02030106, on right upstream wingwall of bridge on Wertzville Road, 2.1 mi east of Ringoes, 1.3 mi upstream from Back Brook, and 2.3 mi southwest of Wertzville.	1.98	1988-89	6-10-89	4.44	1,030
01399525	Axle Brook near Pottersville, NJ	Lat 40°41'40", long 74°43'05", Somerset County, Hydrologic Unit 02030105, on right upstream wingwall of bridge on Black River Road, 1.3 mi, south of Pottersville, and 0.3 mi upstream from mouth. Datum of gage is 172.74 ft above National Geodetic Vertical Datum of 1929.	1.22	1977-88†, 1988-89	5-05-89	4.45	527
01399700	Rockaway Creek at Whitehouse, NJ	Lat 40°37'55", long 74°44'11", Hunterdon County, Hydrologic Unit 02030105, on right bank at bridge on Lamington Road, 1.4 mi northeast of Whitehouse, and 1.8 mi upstream from mouth. Datum of gage is 99.64 ft. National Geodetic Vertical Datum of 1929.	37.1	1959-62, 1964-65, 1977-84†, 1985-89	11-20-88	6.78	2,010
01399830	North Branch Raritan River at North Branch, NJ	Lat 40°36'00", long 74°40'27", Somerset County, Hydrologic Unit 02030105, on right bank 5 ft upstream from bridge on State Highway 28 in North Branch, 0.1 mi south of River Brook, and 3.6 mi upstream from confluence with South Branch Raritan River. Datum of gage is 56.94 ft above National Geodetic Vertical Datum of 1929.	174	1977-81†, 1982-89	9-20-89	12.15	7,300
01400630	Millstone River at Southfield Road near Grovers Mill, NJ	Lat 40°18'12", long 74°34'33", Mercer County, Hydrologic Unit 02030105, at bridge on Southfield Road, 0.2 mi southeast at Grovers Mill, 3.5 mi southwest of Cranbury, and 3.0 mi upstream of Bear Brook. Datum of gage is 62.63 ft above National Geodetic Vertical Datum of 1929.	41.0	1971,75, 1979-89	9-20-89	6.79	1,140
01400775	Bear Brook at Route 535, near Locust Corner, NJ	Lat 40°16'41", long 74°34'39", Mercer County, Hydrologic Unit 02030105, at bridge on State Route 535, 0.9 mi southwest of Locust Corner, 2.0 mi east of Hightstown, and 4.2 mi above mouth. Datum of gage is 73.75 ft above National Geodetic Vertical Datum of 1929.	6.69	1971,75, 1979-89	7-06-89	67.95	1,550

Annual maximum discharge at crest-stage partial-record stations during water year 1989--Continued

Station No.	Station name	Location	Drainage area (mi ²)	Period of record	Annual Maximum		
					Date	Gage height (ft)	Discharge (ft ³ /s)
Raritan River basin--Continued							
01400795	Bear Brook at Route 571, near Grovers Mill, NJ	Lat 40°17'41", long 74°35'34", Mercer County, Hydrologic Unit 02030105, at bridge on Route 571 (Princeton - Hightstown Road), 1.2 mi upstream of Grovers Mill Pond, 1.4 mi east of Princeton Junction, and 2.9 mi west of U.S. Route 130 and Hightstown.	9.28	1986-89	6-10-89	11.90	1,325
01400822	Little Bear Brook at Penns Neck, NJ	Lat 40°19'21", long 74°37'37", Mercer County, Hydrologic Unit 02030105, at downstream side of bridge on Alexander Road, 0.9 mi southeast of Penns Neck, 2.8 mi southwest of Plainsboro and 1.0 mi above mouth. Datum of gage is 53.96 ft above National Geodetic Vertical Datum of 1929.	1.84	1971,75, 1979-89	9-20-89	5.04	a
01400900	Stony Brook at Glenmoore, NJ	Lat 40°21'55", long 74°47'14", Mercer County, Hydrologic Unit 02030105, at highway bridge on Spur State Route 518, 200 ft east of tracks of CONRAIL, at Glenmoore, and 2.0 mi southwest of Hopewell. Datum of gage is 159.1 ft above National Geodetic Vertical Datum of 1929.	17.0	1957-89	6-10-89	7.94	3,100
*01400930	Baldwin Creek at Pennington, NJ	Lat 40°20'18", long 74°47'50", Mercer County, Hydrologic Unit 02030105, at bridge on State Route 31, 0.8 mi north of Pennington, and 0.9 mi upstream from Baldwin Lake dam. Datum of gage is 161.69 ft above National Geodetic Vertical Datum of 1929.	1.99	1960-89	9-20-89	5.97	410
01400950	Hart Brook near Pennington, NJ	Lat 40°19'17", long 74°45'38", Mercer County, Hydrologic Unit 02030105, at culvert on Federal City Road, 1.6 mi upstream of mouth, and 1.7 mi southeast of Pennington. Datum of gage after July 1, 1975 is 163.32 ft above National Geodetic Vertical Datum of 1929.	.57	1968-89	6-10-89	4.09	200
01401160	Duck Pond Run near Princeton Junction, NJ	Lat 40°17'47", long 74°38'47", Mercer County, Hydrologic Unit 02030105, on right bank upstream from bridge on Clarksville Road, 1.5 mi southwest of Princeton Junction, and 4.0 mi south of Princeton. Datum of gage is 72.50 ft above National Geodetic Vertical Datum of 1929.	1.35	1980-89	6-10-89	6.68	275
01401301	Millstone River at Carnegie Lake, at Princeton, NJ	Lat 40°22'11", long 74°37'15", Middlesex County, Hydrologic Unit 02030105, at right end of Carnegie Lake dam, 2.5 mi northeast of Princeton. Datum of gage is 50.00 ft above National Geodetic Vertical Datum of 1929.	159	1977-89	9-21-89	5.30	7,720
01401595	Rock Brook near Blawenburg, NJ	Lat 40°25'47", long 74°41'05", Somerset County, Hydrologic Unit 02030105, at bridge on Burnt Hill Road, 0.7 mi upstream from mouth, 1.0 mi northeast of Blawenburg, and 2.8 mi northwest of Rocky Hill. Datum of gage is 63.45 ft above National Geodetic Vertical Datum of 1929.	9.03	1967-89	6-10-89	b6.58	2,150

Annual maximum discharge at crest-stage partial-record stations during water year 1989--Continued

Station No.	Station name	Location	Drainage area (mi ²)	Period of record	Annual Maximum		
					Date	Gage height (ft)	Discharge (ft ³ /s)
Raritan River basin--Continued							
01401600	Beden Brook near Rocky Hill, NJ	Lat 40°24'52", long 74°39'02", Somerset County, Hydrologic Unit 02030105, at bridge on U.S. Route 206, 0.7 mi upstream from Pike Run, 1.2 mi northwest of Rocky Hill, and 4.6 mi north of Princeton. Datum of gage is 38.09 ft above National Geodetic Vertical Datum of 1929.	27.6	1967-89	6-10-89	10.80	4,000
01401870	Six Mile Run near Middlebush, NJ	Lat 40°28'12", long 74°32'42", Somerset County, Hydrologic Unit, 02030105, at bridge on South Middlebush Road, 1.6 mi upstream from mouth, and 2.1 mi south of Middlebush. Datum of gage is 39.91 ft above National Geodetic Vertical Datum of 1929.	10.7	1966-89	9-20-89	9.01	3,620
01403395	Blue Brook at Seeleys Pond Dam, near Berkeley Heights, NJ	Lat 40°40'02", long 74°24'13", Union County, Hydrologic Unit 02030105, on wall on right bank, upstream from Seeleys Pond spillway, 300 ft north of Scotch Plains, 1.0 mi west of Mountainside, and 4.5 mi southeast of Berkeley Heights. Datum of gage is 202.05 ft National Geodetic Vertical Datum of 1929.	3.59	1973, 1981-89	9-20-89	4.84	275
01403500	Green Brook at Plainfield, NJ	Lat 40°36'53", Long 74°25'55", Union County, Hydrologic Unit 02030105, on left bank 20 ft downstream from bridge on Sycamore Avenue in Plainfield and 1.0 mi upstream from Stony Brook. Datum of gage is 70.37 ft above National Geodetic Vertical Datum of 1929.	9.75	1938-84†, 1985-89	9-20-89	3.73	910
Navesink River basin							
01407290	Big Brook near Marlboro, NJ	Lat 40°19'10", long 74°12'52", Monmouth County, Hydrologic Unit 02030104, downstream side of bridge on Hillsdale Road, 1.7 mi east of Marlboro, and 3.0 mi northwest of Colts Neck.	6.42	1980-89	9-20-89	b10.16	1,370
Manasquan River basin							
*01407830	Manasquan River near Georgia, NJ	Lat 40°12'36", long 74°16'41", Monmouth County, Hydrologic Unit 02040301, at culvert on Jacksons Mill Road near Georgia, and 0.5 mi upstream from Debois Creek. Datum of gage is 70.47 ft above National Geodetic Vertical Datum of 1929. Revised Records--WDR NJ-87-1.	10.6	1969-89	9-20-89	13.53	870
*01408015	Mingamahone Brook at Farmingdale, NJ	Lat 40°11'38", long 74°09'42", Monmouth County, Hydrologic Unit 02040301, at bridge on Belmar Road in Farmingdale, and 3.0 mi upstream from mouth. Datum of gage is 48.64 ft above National Geodetic Vertical Datum of 1929.	6.20	1969-89	5-11-89	5.44	205
*01408030	Manasquan River at Allenwood, NJ	Lat 40°08'35", long 74°07'03", Monmouth County, Hydrologic Unit 02040301, at bridge on Hospital Road at Allenwood, and 1.5 mi downstream from Mill Run. Datum of gage is 3.56 ft above National Geodetic Vertical Datum of 1929.	63.9	1969-89	9-20-89	b8.75	1,800

Annual maximum discharge at crest-stage partial-record stations during water year 1989--Continued

Station No.	Station name	Location	Drainage area (mi ²)	Period of record	Annual Maximum		
					Date	Gage height (ft)	Discharge (ft ³ /s)
Great Egg Harbor River basin							
01410810	Fourmile Branch at New Brooklyn, NJ	Lat 39°41'47", long 74°56'25", Camden County, Hydrologic Unit 02040302, on left bank 70 ft upstream from bridge on Malaga Road, 0.3 mi northeast of New Brooklyn, 0.3 mi upstream from mouth. Datum of gage is 101.04 ft above National Geodetic Vertical Datum of 1929.	7.74	1972-79†, 1980-89	7-23-89	5.32	148

* Also a low-flow partial-record station.

† Operated as a continuous-record gaging station.

a Discharge not determined.

b Downstream side of bridge.

c Peak gage height below recordable level.

e Estimated.

Low-flow partial-record stations

Measurements of streamflow in New Jersey made at low-flow partial-record stations are given in the following table. Most of these measurements were made during periods of base flow when streamflow is primarily from ground-water storage. These measurements, when correlated with the simultaneous discharge of a nearby stream where continuous records are available, will give a picture of the low-flow potentiality of a stream. The column headed "Period of record" shows the water years in which measurements were made at the same, or practically the same, site.

Discharge measurements made at low-flow partial-record stations during water year 1989

Station No.	Station Name	Location	Drainage area (mi ²)	Period of record	Measurements	
					Date	Discharge (ft ³ /s)
Hudson River basin						
01367700	Wallkill River at Franklin, NJ	Lat 41°06'43", long 74°35'21", Sussex County, Hydrologic Unit 02020007, at bridge on Franklin Avenue (Route 631) at Franklin, 100 ft downstream of Franklin Pond and 0.5 mi northeast of State Route 23.	29.4	1959-64, 1982-83, 1985, 1987-89	7-19-89	15
Passaic River basin						
01378700	Passaic River at outlet of Osborn Pond, at Osborn Mills, NJ	Lat 40°43'09", long 74°31'52", Somerset County, Hydrologic Unit 02030103, 800 ft downstream from dam on Osborn Pond, 0.9 mi above Penns Brook, and 1.3 mi northeast of Basking Ridge.	10.0	1961-63, 1968, 1987-89	10-12-88	4.6
01379200	Dead River near Millington, NJ	Lat 40°56", long 74°31'26", Morris County, Hydrologic Unit 02030103, at bridge on King George Road (Spur State Route 527), 100 ft upstream from mouth, 2.0 mi south of Millington, and 4.2 mi south of Basking Ridge.	20.8	1962-67, 1973-75, 1986-89	10-11-88	6.1
01379525	Canoe Brook near Millburn, NJ	Lat 40°44'55", long 74°20'14", Essex County, Hydrologic Unit 02030103, at bridge on Parsonage Hill Road, 0.2 mi downstream from Taylor Lake, 1.0 mi upstream from New Jersey-American Water Company pumping station, and 1.4 mi northwest of Millburn.	10.2	1989	9-07-89	.47
01379560	Passaic River at Florham Park, NJ	Lat 40°46'45", long 74°22'09", revised, Morris County, Hydrologic Unit 02030103, at bridge on South Orange Avenue, 1.2 mi southeast of Florham Park, and 1.6 mi downstream from Spring Garden Brook.	125	1988-89	10-11-88	39
01381200	Rockaway River at Pine Brook, NJ	Lat 40°51'42", long 74°20'53", Morris County, Hydrologic Unit 02030103, at bridge on U.S. Route 46, 0.9 mi west of Pine Brook, and 1.1 mi upstream of Whippany River.	136	1963-73, 1979-81, 1983-89	10-11-88	25
01381550	Malapardis Brook at Whippany, NJ	Lat 40°49'22", long 74°25'08", Morris County, Hydrologic Unit 02030103, at bridge on Parsippany Road at Whippany, 400 ft upstream from mouth, and 2.2 mi south of Parsippany.	5.07	1989	9-07-89	1.7
01381800	Whippany River near Pine Brook, NJ	Lat 40°50'42", long 74°20'51", Morris County, Hydrologic Unit 02030103, at bridge on Edwards Road, 0.3 mi upstream from mouth, and 1.3 mi southwest of Pine Brook.	68.5	1963-68, 1978, 1979-81, 1983-89	10-11-88	34
01382000	Passaic River at Two Bridges, NJ	Lat 40°53'50", long 74°16'23", Essex County, Hydrologic Unit 02030103, at bridge on Two Bridges Road, just above confluence with Pompton River, 0.3 mi northeast of Two Bridges, and 2.6 mi northwest of Little Falls.	361	1963-68, 1983-84, 1986-89	10-11-88	128

Discharge measurements made at low-flow partial-record stations during water year 1989--Continued

Station No.	Station Name	Location	Drainage area (mi ²)	Period of record	Measurements	
					Date	Discharge (ft ³ /s)
Passaic River basin--Continued						
01389100	Singac Brook at Singac, NJ	Lat 40°53'57", long 74°15'57", Passaic County, Hydrologic Unit 02030103, at bridge on Fairfield Road, between U.S. Routes 80 and 46, 60 ft upstream from mouth, 1.2 mi northwest of Signac, and 1.8 mi northwest of Little Falls.	11.1	1963-67, 1983-84, 1986-89	6-21-89 9-07-89	41 18
01389140	Deepavaal Brook at Two Bridges, NJ	Lat 40°53'14", long 74°16'00", Essex County, Hydrologic Unit 02030103, at bridge on Little Falls Road, 400 ft upstream from Passaic River, and 0.8 mi southeast of Two Bridges.	7.59	1970, 1983-84, 1988-89	6-21-89	14
Elizabeth River basin						
01393350	West Branch Elizabeth River near Union, NJ	Lat 40°41'32", long 74°14'38", Union County, Hydrologic Unit 02030104, at bridge on Vauxhall Road, 0.3 mi upstream of mouth, 1.4 mi east of Union, and 2.3 mi northwest of Elizabeth.	2.53	1989	9-07-89	.62
Rahway River basin						
01394400	Van Winkle Brook at Springfield, NJ	Lat 40°42'12", long 74°18'15", Union County, Hydrologic Unit 02030104, at railroad bridge in Springfield, 0.4 mi upstream from mouth, 0.4 mi downstream from Mountain Avenue bridge, and 2.3 mi west of Union.	4.85	1989	9-07-89	.69
01394600	Namahegan Brook near Mountain-side, NJ	Lat 40°40'42", long 74°19'54", Union County, Hydrologic Unit 02030104, at bridge on Springfield Avenue, 0.2 mi downstream of Echo Lake, 1.1 mi upstream of mouth, and 1.4 mi northeast of Mountainside.	3.76	1989	9-07-89	1.5
Raritan River basin						
01396180	Drakes Brook at Bartley, NJ	Lat 40°48'43", long 74°43'45", Morris County, Hydrologic Unit 02030105, at bridge on Bartley Road, 0.25 mi upstream from mouth, 0.9 mi southwest of Bartley, and 2.5 mi of Chester.	16.6	1964-73, 1975-76, 1988-89	12-14-88 4-13-89 7-26-89 9-08-89	13 27 17 8.8
01396280	South Branch Raritan River at Middle Valley, NJ	Lat 40°45'40", long 74°49'18", Morris County, Hydrologic Unit 02030105, at bridge on Middle Valley Road, at Middle Valley, 200 ft northwest of West Mill Road (State Route 513), and 0.2 mi upstream of CONRAIL railroad bridge.	47.7	1963-67, 1973, 1975, 1982-83, 1985-89	7-26-89	54
01396350	South Branch Raritan River at Califon, NJ	Lat 40°43'14", long 74°50'16", Morris County, Hydrologic Unit 02030105, at bridge on Main Street in Califon, 0.4 mi downstream from Frog Hollow Brook, and 2.5 mi northwest of Mountainville.	58.5	1975-76, 1989	7-26-89 9-08-89	62 34
01397290	Assiscong Creek at Bartles Corners, NJ	Lat 40°32'23", long 74°50'52", Hunterdon County, Hydrologic Unit 02030105, at bridge on River Road, 0.3 mi upstream from mouth, 1.5 mi north of Flemington, and 2.8 mi west of Three Bridges.	2.98	1981-89	6-21-89 9-08-89	5.0 .45
01397800	Neshanic River near Flemington, NJ	Lat 40°28'46", long 74°51'29", Hunterdon County, Hydrologic Unit 02030105, at bridge on Kuhl Road, 200 ft downstream from confluence of First Neshanic River and Second Neshanic River, 1.4 mi south of Flemington, and 2.1 mi west of Reaville.	11.4	1981-89	6-21-89 9-08-89	9.8 .46

Discharge measurements made at low-flow partial-record stations during water year 1989--Continued

Station No.	Station Name	Location	Drainage area (mi ²)	Period of record	Measurements	
					Date	Discharge (ft ³ /s)
Raritan River basin--Continued						
01397900	Third Neshanic River near Ringoes, NJ	Lat 40°27'31", long 74°52'05", Hunterdon County, Hydrologic Unit 02030105, at bridge on Eitts Road, 2.0 mi upstream from mouth, 2.1 mi north of Ringoes, and 3.0 mi southwest of Reaville.	9.24	1981-89	6-21-89 9-08-89	12 1.7
01398052	Back Brook near Reaville, NJ	Lat 40°27'32", long 74°49'24", Hunterdon County, Hydrologic Unit 02030105, at bridge on Manners Road, 0.6 mi upstream from mouth, 0.8 mi northwest of Wertsville, and 1.5 mi southeast of Reaville.	11.4	1981-89	6-21-89 9-08-89	10 .69
01398075	Pleasant Run at Centerville, NJ	Lat 40°32'17", long 74°45'17", Hunterdon County, Hydrologic Unit 02030105, at bridge on Old York Road in Centerville, 2.4 mi northwest of Neshanic Station, 2.5 mi upstream from mouth, and 2.7 mi northwest of Three Bridges.	8.11	1982-89	6-21-89 9-08-89	8.2 .72
01398260	North Branch Raritan River near Chester, NJ	Lat 40°46'16", long 74°37'34", Morris County, Hydrologic Unit 02030105, at bridge on State Route 24, 0.8 mi upstream from Burnett Brook, and 3.8 mi east of Chester.	7.57	1964-67, 1980-89	7-26-89	6.5
01399190	Lamington (Black) River at Succasunna, NJ	Lat 40°51'03", long 74°38'02", Morris County, Hydrologic Unit 02030105, bridge on Righter Road, 0.7 mi south of Succasunna, and 0.4 mi upstream from Succasunna Brook.	7.37	1977-87a, 1988-89	10-27-88 12-14-88 4-13-89 7-26-89 9-08-89	5.1 6.1 10 8.5 1.8
01399200	Lamington (Black) River near Ironia, NJ	Lat 40°50'07", long 74°38'40", Morris County, Hydrologic Unit 02030105, at bridge on Ironia Road, 1.0 mi downstream of Succasunna Brook, and 1.3 mi northwest of Ironia.	10.9	1964-72, 1976-87a, 1988	10-27-88 12-14-88 4-13-89 7-26-89 9-08-89	8.7 8.0 17 12 4.1
01399300	Lamington River at Milltown, NJ	Lat 40°47'13", long 74°43'13", Morris County, Hydrologic Unit 02030105, at bridge on New Furnace Road, 0.1 mi downstream from Tanners Brook, and 0.6 mi north of Milltown.	23.2	1988-89	b9-09-88 1-05-89 4-13-89 7-26-89 9-08-89	32 27 41 32 c10
*01399700	Rockaway Creek at Whitehouse, NJ	Lat 40°37'49", long 74°44'11", Hunterdon County, Hydrologic Unit 02030105, at bridge on Lamington Road, 1.4 mi northeast of Whitehouse, and 1.8 mi upstream from mouth.	37.1	1959-62, 1964-65, 1973, 1977-84a 1986-89	7-12-89	37
01400540	Millstone River Plainsboro, NJ	Lat 40°15'44", long 74°25'13", Monmouth County, Hydrologic Unit 02030105, at bridge on State Route 33, 1.3 mi west of Manalapan, 5.5 mi east of Hightstown, and 8.4 mi upstream of Rocky Brook.	7.37	1960-62, 1964, 1971-72, 1985, 1987-89	9-17-89	9.94
01404060	Ambrose Brook at Middlesex, NJ	Lat 40°03", long 74°31'02", Middlesex County, Hydrologic Unit 02030105, at dam, 900 ft upstream from bridge on State Route 18 in Middlesex, and 0.7 mi upstream from mouth.	13.9	1979-89	6-21-89 9-07-89	11 2.7
01405170	Milford Brook at Englishtown, NJ	Lat 40°18'02", long 74°20'07", Monmouth County, Hydrologic Unit 02030105, at bridge on Cornsack Road, 0.6 mi upstream from McGellairs Brook, 1.2 mi east of Englishtown, and 2.0 mi southwest of Gordons Corner.	4.86	1982, 1984-89	6-21-89 9-07-89	16 3.3

Discharge measurements made at low-flow partial-record stations during water year 1989--Continued

Station No.	Station Name	Location	Drainage area (mi ²)	Period of record	Measurements	
					Date	Discharge (ft ³ /s)
Raritan River basin--Continued						
01405180	McGellairds Brook at Englishtown, NJ	Lat 40°18'06", long 74°21'26", Monmouth County, Hydrologic Unit 02030105, at bridge on Wilson Avenue in Englishtown, 0.8 mi downstream from Milford Brook, 1.0 mi southeast of Monmouth-Middlesex County line, and 5.5 mi northwest of Freehold.	14.9	1982, 1984-89	9-07-89	10
01405210	Pine Brook at Clarks Mills, NJ	Lat 40°18'58", long 74°19'51", Monmouth County, Hydrologic Unit 02030105, at bridge on Winthrop Drive, 1.3 mi east of Clarks Mills, 1.9 mi upstream of Matchaponix Brook, and 4.8 mi northwest of Freehold.	4.66	1982, 1984-89	6-21-89 9-07-89	15 2.9
Matawan Creek basin						
01407012	Gravelly Brook at Church Street, at Matawan, NJ	Lat 40°4'27", long 74°05'18", Monmouth County, Hydrologic Unit 02030104, at bridge on Church Road, 0.5 mi east of intersection of State Routes 34 and 79, and 0.9 mi upstream of the mouth.	2.36	1987-89	6-21-89 9-07-89	3.2 2.5
01407026	Wilkson Creek at Church Street, at Matawan, NJ	Lat 40°24'24", long 74°14'18", Monmouth County, Hydrologic Unit 02030104, at bridge on Church Street, 0.7 mi east of Matawan, 2.2 mi southeast of Keyport, and 2.6 mi upstream of mouth.	1.37	1987-89	6-21-89 9-07-89	2.6 1.8
East Creek basin						
01407055	East Creek at North Centerville, NJ	Lat 40°25'32", long 74°09'58", Monmouth County, Hydrologic Unit 02030104, at bridge on Middle Road, 0.2 mi west of intersection of Union Road and Middle Road at North Centerville, and 2.0 mi upstream from mouth.	2.56	1969, 1986-89	6-21-89 9-07-89	2.4 1.3
Waackaack Creek basin						
01407070	Waackaack Creek at Middle Road, near Keansburg, NJ	Lat 40°25'23", long 74°08'12", Monmouth County, Hydrologic Unit 02030104, at bridge on Middle Road at community of Philips Mills, 1.4 mi south of Keansburg, and 3.1 mi upstream from mouth.	4.30	1987-89	6-21-89 9-07-89	12 5.6
Compton Creek basin						
01407102	Town Brook at Church Street, at New Monmouth, NJ	Lat 40°24'52", long 74°06'00", Monmouth County, Hydrologic Unit 02030104, at bridge on Church Street, at New Monmouth, 0.2 mi upstream of mouth, and 1.1 mi south of Port Monmouth.	3.35	1987-89	6-21-89 9-07-89	6.3 2.9
Navesink River basin						
01407200	Hop Brook at Holmdel, NJ	Lat 40°20'41", long 74°10'29", Monmouth County, Hydrologic Unit 02030104, at bridge on State Route 520, 0.5 mi east of its intersection with South Street in Holmdel, and 1.7 mi downstream from Big Brook.	5.72	1969-74 1989	10-06-88	2.3
01407250	Willow Brook at Holmdel, NJ	Lat 40°20'17", long 74°11'14", Monmouth County, Hydrologic Unit 02030104, at bridge on South Street, 0.5 mi south of its intersection with State Route 520 in Holmdel, and 1.9 mi upstream from Hop Brook.	6.88	1969-74, 1989	10-06-88	2.5

Discharge measurements made at low-flow partial-record stations during water year 1989--Continued

Station No.	Station Name	Location	Drainage area (mi ²)	Period of record	Measurements	
					Date	Discharge (ft ³ /s)
Navesink River basin--Continued						
01407300	Big Brook at Vanderburg, NJ	Lat 40°19'32", long 74°11'19", Monmouth County, Hydrologic Unit 02030104, at its intersection with Conover Road, 0.8 mi north of Vanderburg, and 1.8 mi upstream from Hop Brook.	8.41	1969-74, 1989	10-06-88	3.2
01407400	Yellow Brook at Colts Neck, NJ	Lat 40°17'47", long 74°10'16", Monmouth County, Hydrologic Unit 02030104, at bridge on Creamery Road, 0.3 mi upstream from Mine Brook, and 0.7 mi north of Colts Neck.	9.71	1969-74, 1980-82, 1989	10-06-88	4.1
01407450	Mine Brook at Colts Neck, NJ	Lat 40°17'29", long 74°10'11", Monmouth County, Hydrologic Unit 02030104, at bridge on Creamery Road, 0.4 mi northeast of Colts Neck, and 0.5 mi upstream from Yellow Brook.	5.48	1969-74, 1979-80, 1982, 1989	10-06-88	1.4
01407532	Poricy Brook at Red Bank, NJ	Lat 40°21'25", long 74°05'18", Monmouth County, Hydrologic Unit 02030104, at bridge on Navesink River Road, 200 ft downstream of Poricy Pond, 0.4 mi upstream of mouth, and 1.0 mi northwest of Red Bank.	2.54	1987-89	9-07-89	1.9
01407618	Whale Pond Brook near Oakhurst, NJ	Lat 40°16'35", long 74°00'12", Monmouth County, Hydrologic Unit 02030104, at bridge on Norwood Avenue, 0.6 mi upstream of Lake Takanassee, and 0.8 mi northeast of Oakhurst.	6.20	1989	6-01-89 6-21-89 9-07-89	10 9.6 8.8
01407628	Poplar Brook near Deal, NJ	Lat 40°15'24", long 74°00'42", Monmouth County, Hydrologic Unit 02030104, at bridge on Monmouth Road, 0.7 mi west of Deal, 0.1 mi south of Oakhurst, and 1.3 mi upstream of mouth.	2.49	1989	6-01-89 6-21-89 9-07-89	4.4 4.5 3.2
01407636	Hog Swamp Brook at West Allenhurst, NJ	Lat 40°14'36", long 74°00'52", Monmouth County, Hydrologic Unit 02030104, at culvert on Monmouth Road, 0.7 mi west of Deal, 1.6 mi north of Asbury Park, and 1.6 mi upstream of dam on Deal Lake.	1.99	1989	6-01-89 6-21-89 9-07-89	2.2 2.4 1.8
01407755	Jumping Brook above reservoir, near Neptune City, NJ	Lat 40°12'30", long 74°04'12", Monmouth County, Hydrologic Unit 02030104, at bridge on State Route 33, 0.25 mi upstream of Jumping Brook Reservoir, and 2.3 mi west of Neptune City.	5.58	1989	6-01-89 6-21-89 9-07-89	4.6 4.8 3.1
01407780	Polly Pod Brook at South Belmar, NJ	Lat 40°10'00", long 74°01'41", Monmouth County, Hydrologic Unit 02030104, at culvert on F Street at South Belmar, 50 ft upstream of Lake Como, and 0.6 mi upstream of mouth.	.99	1989	6-01-89 6-21-89 9-07-89	1.3 1.6 .87
01407806	Hannabrand Brook at Old Mill Road, near Spring Lake Heights, NJ	Lat 40°08'29", long 74°03'43", Monmouth County, Hydrologic Unit 02030104, at bridge on Old Mill Road, 300 ft upstream of mouth, and 1.0 mi southwest of Spring Lake Heights.	3.13	1989	6-01-89 6-21-89 9-07-89	4.3 4.1 3.9
01409390	Mullica River at Outlet of Atsion Lake, Atsion, NJ	Lat 39°44'25", long 74°43'37", Burlington County, Hydrologic Unit 02040301, at bridge on U.S. Route 206 in Atsion, at outlet of Atsion Lake, and 0.2 mi upstream from Wesickaman Creek.	26.7	1975-86, 1989	9-13-89	16

Discharge measurements made at low-flow partial-record stations during water year 1989--Continued

Station No.	Station Name	Location	Drainage area (mi ²)	Period of record	Measurements	
					Date	Discharge (ft ³ /s)
Mullica River basin						
01410215	Clarks Mill Stream at Port Republic, NJ	Lat 39°30'23", long 74°30'21", Atlantic County, Hydrologic Unit 02040301, at bridge on State Route 575, 0.5 mi upstream of Mill Pond and 1.0 mi east of Port Republic.	8.61	1986-89	6-21-89 9-11-89	13 7.1
01410225	Morses Mill Stream at Port Republic, NJ	Lat 39°30'48", long 74°30'30", Atlantic County, Hydrologic Unit 02040301, at bridge on State Alternate Route 561 (Moss Mill Road), 0.6 mi upstream of Mill Pond, and 1.2 mi southwest of Port Republic.	8.25	1986-89	6-21-89 9-11-89	11 3.7
Great Egg Harbor River basin						
01410810	Fourmile Branch at New Brooklyn, NJ	Lat 39°41'47", long 74°56'25", Camden County, Hydrologic Unit 02040302, on left bank 70 ft upstream from bridge on Malaga Road, 0.3 mi northeast of New Brooklyn, and 0.3 mi upstream from mouth.	7.74	1972-79a 1980-89	11-21-88	2.5
01411170	Great Egg Harbor River at Mays Landing, NJ	Lat 39°27'13", long 74°44'04", Atlantic County, Hydrologic Unit 02040302, at bridge on Route 559, at outlet of Lake Lenape, and 0.4 mi west of intersection of State Route 50 with U.S. Route 40 in Mays Landing.	205	1988-89	9-07-89	94
01411250	English Creek near Scullville, NJ	Lat 39°22'07", long 74°39'46", Atlantic County, Hydrologic Unit 02040302, at bridge on School House Road, 1.8 mi upstream from State Route 559, at the community of English Creek, and 2.5 mi northwest of Scullville.	3.80	1986-89	6-21-89 9-11-89	5.2 4.4
Patcong Creek basin						
01411305	Mill Branch near Northfield, NJ	Lat 39°23'23", long 74°35'37", Atlantic County, Hydrologic Unit 02040302, at bridge on County Route 684 (Spruce Rd), 0.4 mi downstream of Cedar Branch, 1.1 mi south of Cardiff, and 4.5 mi northwest of Northfield.	7.47	1986-89	6-21-89 9-11-89	7.9 7.1

* Also a crest-stage partial-record station.

a Operated as a continuous-record gaging station by U.S. Geological Survey.

b Not previously published

c Estimated discharge

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements at miscellaneous sites

Measurements of streamflow at points other than gaging stations are given in the following table. Those that are measurements of base flow are designated by an asterisk (*).

Discharge measurements made at miscellaneous sites during water year 1989

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
Hudson River basin						
01367770 Wallkill River	Rondout Creek	Lat 40°11'38", long 74°34'32", Sussex County, Hydrologic Unit 02020007, at bridge on Glenwood Road, 0.6 mi upstream of Papakating Creek, 1.7 mi southwest of Independence Corner and 2.0 mi southeast of Sussex.	60.8	1977-82, 1985, 1987-88	7-20-89	37
Passaic River basin						
01379340 Passaic River	Newark Bay	Lat 40°41'22", long 74°26'24", Union County, Hydrologic Unit 02030103, at bridge on Snyder Avenue at Berkeley Heights, and 1200 ft northwest of State Route 512.	89.5	1968, 1987	10-11-88	28
01379530 Canoe Brook	Passaic River	Lat 40°45'21", long 74°21'43", Essex County, Hydrologic Unit 02030103, just downstream of New Jersey-American Water Company pumping station, 0.5 mi upstream of mouth, and 2.0 mi north of Summit.	11.0	1933-60ac, 1961-87bc, 1988	10-18-88, 12-05-88	.10 0
01379781 Green Pond Brook	Rockaway River	Lat 40°56'45", long 74°33'39", Morris County, Hydrologic Unit 02030103, at bridge on Ninth Street, 0.3 mi downstream of Picatinny Lake, and 1.5 mi northwest of Mt. Hope.	9.26	1989	9-27-89	22
01379782 Green Pond Brook	Rockaway River	Lat 40°56'23", long 74°33'52", Morris County, Hydrologic Unit 02030103, at bridge on Farley Avenue in Picatinny Arsenal, 0.8 mi downstream of Picatinny Lake, and 1.4 mi northwest of Mt. Hope.	10.0	1983	a6-04-87, 4-03-89, 9-24-89	5.3 31 *25
01379784 Bear Swamp Brook	Green Pond Brook	Lat 40°56'45", long 74°34'04", Morris County, Hydrologic Unit 02030103, at bridge on Sixth Street in Picatinny Arsenal, 0.9 mi upstream from mouth, and 1.8 mi northwest of Mt. Hope.		1982, 1987	a6-03-87	*.42
405631074341500 Bear Swamp Brook	Green Pond Brook	Lat 40°56'31", long 74°34'15", Morris County, Hydrologic Unit 02030103, at bridge on Farley Avenue in Picatinny Arsenal, 0.7 mi upstream of mouth, and 1.5 mi northeast of Berkshire Valley.	.43		a6-03-87, 4-03-89, 9-25-89	.40 2.0 *3.9
405629074341600 Bear Swamp Brook	Green Pond Brook	Lat 40°56'29", long 74°34'16", Morris County, Hydrologic Unit 02030103, 500 ft downstream from bridge on Farley Avenue in Picatinny Arsenal, 0.6 mi upstream of mouth, and 1.4 mi northeast of Berkshire Valley.	.45	1987	a6-03-87	*.41
405627074341900 Bear Swamp Brook	Green Pond Brook	Lat 40°56'27", long 74°34'19", Morris County, Hydrologic Unit 02030103, 800 ft downstream from bridge on Farley Avenue in Picatinny Arsenal, 0.5 mi upstream of mouth, and 1.4 mi northeast of Berkshire Valley.	.48	1987	a6-03-87	*.41
01379785 Bear Swamp Brook	Green Pond Brook	Lat 40°56'29", long 74°33'18", Morris County, Hydrologic Unit 02030103, at bridge on Third Street in Picatinny Arsenal, 0.5 mi upstream of mouth, and 1.8 mi northwest of Mt. Hope.	.50	1983, 1987	a6-03-87, 9-25-89	*.46 *3.6

Discharge measurements made at miscellaneous sites during water year 1989--Continued

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
Passaic River basin--Continued						
01379786 Bear Swamp Brook	Green Pond Brook	Lat 40°56'19", long 74°34'28", Morris County, Hydrologic Unit 02030103, at bridge on Second Street in Picatinny Arsenal, 0.3 mi upstream of mouth, and 1.9 mi northwest of Mt. Hope.	.56	1983, 1987	a6-03-87 9-25-89	*.37 *4.2
405613074342200 Bear Swamp Brook	Green Pond Brook	Lat 40°56'13", long 74°34'22", Morris County, Hydrologic Unit 02030103, 900 ft upstream from Green Pond Brook, 0.5 mi down- stream from bridge on Farley Avenue, and 1.1 mi east of Berkshire Valley.	.59	1987	a6-03-87	*.41
01379787 Bear Swamp Brook	Green Pond Brook	Lat 40°56'11", long 74°34'12", Morris County, Hydrologic Unit 02030103, at Walkbridge on golf course in Picatinny Arsenal, 0.1 mi upstream of mouth, and 1.6 mi northwest of Mt. Hope.	.60	1983, 1987	a6-03-87 4-03-89 9-25-89	*.43 2.6 *3.7
405615074340100 Green Pond Brook	Rockaway River	Lat 40°56'15", long 74°34'03", Morris County, Hydrologic Unit 02030103, at Picatinny Arsenal, at bridge on Parker Road, 1.1 mi downstream of Picatinny Lake, and 1.5 mi northwest of Mt. Hope.	10.6	1987	a6-04-87 4-03-89 9-24-89	5.5 29 *23
405606074341200 Green Pond Brook	Rockaway River	Lat 40°56'06", long 74°34'15", Morris County, Hydrologic Unit 02030103, at bridge on First Street in Picatinny Arsenal, 0.5 mi downstream of pond, and 1.3 mi east of Berkshire Valley.	10.83		a6-04-87 4-03-89 9-24-89	6.4 32 *23
01379788 Green Pond Brook	Rockaway River	Lat 40°55'59", long 74°34'24", Morris County, Hydrologic Unit 02030103, just downstream of sewage treatment plant in Pica- tinny Arsenal, 1.5 mi downstream of Picatinny Lake, and 1.7 mi west of Mt. Hope.	10.9	1982, 1987	a6-29-87	7.9
405601074344000 Green Pond Brook tributary	Green Pond Brook	Lat 40°56'01", long 74°34'40", Morris County, Hydrologic Unit 02030103 at bridge on Fourth Avenue in Picatinny Arsenal, 800 ft upstream of mouth, and 1.8 mi. west of Mt. Hope.	<0.3	--	4-03-89 9-24-89	.39 .29
40555507432800 Green Pond Brook	Rockaway River	Lat 40°55'55", long 74°34'28", Morris County, Hydrologic Unit 02030103, 500 ft below sewage treatment plant in Picatinny Arsenal, 1.6 mi. downstream of Picatinny Lake, and 1.7 mi. west of Mt. Hope.	11.1	--	4-04-89 9-24-89	*32 *32
405548074343500 Green Pond Brook	Rockaway River	Lat 40°55'38", long 74°48'00", Morris County, Hydrologic Unit 02030103, at bridge on Shinkle Road in Picatinny Arsenal, 2.0 mi. downstream of Picatinny Lake, and 1.9 mi. west of Mt. Hope.	11.4	--	4-04-89 9-24-89	37 *33
405530074345300 Green Pond Brook	Rockaway River	Lat 40°55'30", long 74°34'53", Morris County, Hydrologic Unit 02030103, near Pyrotechnic Area, in Picatinny Arsenal and 2.1 mi. downstream of Picatinny Lake, and 2.1 west of Mt. Hope.	11.9	--	4-04-89 9-26-89	*51 *53
405522074345800 Green Pond Brook	Rockaway River	Lat 40°55'22", long 74°34'58", Morris County, Hydrologic Unit 02030103, near Building 1179 near South Brook in Picatinny Arsenal, 2.2 mi downstream from Picatinny Lake, and 2.1 mi west of Mt. Hope.	12.0	--	4-04-89	*35

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at miscellaneous sites during water year 1989--Continued

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
Passaic River basin--Continued						
405514074350400 Green Pond Brook	Rockaway River	Lat 40°55'14", long 74°35'04", Morris County, Hydrologic Unit 02030103, at lower dam, in Pica- tinny Arsenal, 2.5 mi downstream from Picatinny Lake, and 2.2 mi west of Mt. Hope.	12.1	--	4-04-89 9-26-89	*39 *52
01379789 Green Pond Brook	Rockaway River	Lat 40°55'15", long 74°35'04", Morris County, Hydrologic Unit 02030103, at bridge on Wharton and Northern Railroad in Pica- tinny Arsenal, 2.5 mi downstream of Picatinny Lake, and 0.5 mi east of Berkshire Valley.	12.2	1982	4-04-89 9-26-89	*35 *49
01380000 Beaver Brook	Rockaway River	Lat 40°57'38", long 74°27'43", Morris County, Hydrologic Unit 02030103, 50 ft below sluice gates at outlet of Splitrock Reservoir, 2 mi northeast of Hibernia, and 3.5 mi upstream of mouth of Hibernia Brook.	5.50	1925-46bd, 1976-88cd	11-02-88	*2.1
01388600 Pompton River	Passaic River	Lat 40°56'36", long 74°16'47", Morris County, Hydrologic Unit 02030103, at bridge on Pompton- Newark Turnpike (State Road 504) 1.2 mi west of Packanack Lake, and 2.0 mi downstream of confluence of Ramapo and Pequannock Rivers.	361	--	8-14-89	464
01388910 Pompton River	Passaic River	Lat 40°54'52", long 74°16'15", Passaic County, Hydrologic Unit 02030103, at bridge on U.S. Route 202 at Mountain View, 0.1 mi down- stream of Packanack Brook, and 1.3 mi upstream of mouth.	371	1987-88	10-11-88	90
01389802 Passaic River	Newark Bay	Lat 40°54'57", long 74°10'55", Passaic County, Hydrologic Unit 02030103, on right bank, 10 ft upstream from Passaic Falls (Great Falls) in Paterson, and 1.5 mi downstream from Peckman River. Note: These flows are only over the falls not through hydroelectric plant.	779	1987-88	5-09-89	5730
01391200 Saddle River	Passaic River	Lat 40°56'30", long 74°05'36", Bergen County, Hydrologic Unit 02030103, at bridge on Century Road, at Fair Lawn, and 0.8 mi downstream of Hohokus Brook.	45.2	1978, 1981, 1983, 1986-88	8-14-89	74
Rahway River basin						
01393950 West Branch Rahway River	Rahway River	Lat 40°47'02", long 74°16'27", Essex County, Hydrologic Unit 02030104, at bridge on Indian Avenue, at West Orange, 1.1 mi downstream from bridge at Interstate 280, and 1.2 mi upstream from Orange Reservoir.	2.52	1983, 1985-86, 1988	8-11-89	*6.0
Raritan River basin						
01396535 South Branch Raritan River	Raritan River	Lat 40°39'49", long 74°53'52", Hunterdon County, Hydrologic Unit 02030105, at bridge on Arch Street in High Bridge, 0.9 mi northeast of Mariannes Corner, and 4.3 mi northeast of Norton.	68.8	1978-81, 1983, 1985-88	7-26-89	*83

Discharge measurements made at miscellaneous sites during water year 1989--Continued

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
Raritan River basin--Continued						
01396588 Spruce Run	South Branch Raritan River	Lat 40°40'41", long 74°55'06", Hunterdon County, Hydrologic Unit 02030105, 800 ft down- stream of Rocky Run, 0.3 mi upstream of bridge on Van Syckel Road, and 1.6 mi southeast of Glen Gardner.	15.5	1979, 1981-83, 1985-88	7-26-89	*16
01397400 South Branch Raritan River	Raritan River	Lat 40°31'01", long 74°48'10", Hunterdon County, Hydrologic Unit 02030105, at bridge on Main Street in Three Bridges, 1.4 mi downstream from Bushkill Brook, and 3.0 mi northeast of Flemington.	181	1976, 1978-81, 1983, 1985-88	7-27-89	*306
01399120 North Branch Raritan River	Raritan River	Lat 40°38'09", long 74°40'56", Somerset County, Hydrologic Unit 02030105, at bridge on Burnt Mills Road, 0.1 mi upstream from Lamington River, 0.3 mi east of Burnt Mills, and 4.0 mi southwest of Far Hills.	63.8	1964, 1975-78, 1981-83, 1985-88	7-12-89	*61
01399780 Lamington River	North Branch Raritan River	Lat 40°38'09", long 74°41'13", Somerset County, Hydrologic Unit 02030105, at bridge on Walsh Road at Burnt Mills, 0.2 mi upstream from North Branch Raritan River, and 4.4 mi southwest of Far Hills.	100	1964, 1973, 1975-78, 1981-83, 1985-88	7-12-89	*112
01400120 Raritan River	Raritan Bay	Lat 40°33'42", long 74°38'10", Somerset County, Hydrologic Unit 02030105, at bridge on River Road in Raritan, and 3.5 mi northeast of South Branch.	474	1975-81, 1983, 1985-88	8-22-89	398
01400540 Millstone River	Raritan River	Lat 40°15'44", long 74°25'13", Monmouth County, Hydrologic Unit 02030105, at bridge on State Route 33, 1.3 mi west of Manalapan, 5.5 mi east of Hightstown, and 8.4 mi upstream of Rocky Brook.	7.37	1960-62, 1964, 1971, 1985-88	9-17-89	9.9
01400583 Millstone River	Raritan River	Lat 40°17'36", long 74°31'39", Mercer County, Hydrologic Unit 02030105, at bridge on Old Cranbury Road, 1.0 mi upstream of Rocky Brook, and 1.6 mi north of Hightstown.	20.7	1987-88	7-06-89 8-31-89	418 22
01400589 Rocky Brook	Millstone River	Lat 40°15'11", long 74°29'16", Mercer County, Hydrologic Unit 02030105, at bridge on Disbrow Hill Road, 0.5 mi upstream from Timber Run tributary, and 2.2 mi east of Hightstown.	7.14	1987	7-05-89 8-31-89	64 7.8
01400591 Rocky Brook	Millstone River	Lat 40°15'10", long 74°30'11", Mercer County, Hydrologic Unit 02030105, at bridge on Milford Road, at outlet of Etra Lake, 1.2 mi upstream of Peddie Lake, and 1.6 mi southeast of Hightstown.	9.08	1987-88	5-19-88e 7-06-89 8-31-89	24 94 11
01400599 Rocky Brook	Millstone River	Lat 40°16'37", long 74°32'06", Mercer County, Hydrologic Unit 02030105, at bridge on U.S. Route 130 at Hightstown, 0.4 mi northeast of intersection of U.S. Route 130, and County Route 571.	14.4	1971-72, 1987-88	5-19-88 7-06-89 8-31-89	e54 183 21
01400725 Cranbury Brook	Millstone River	Lat 40°19'34", long 74°36'11", Middlesex County, Hydrologic Unit 02030105, at bridge on Maple Avenue at outlet of Plainsboro Pond in Plainsboro, and 0.7 mi upstream of mouth.	22.1	1967, 1971-72, 1987-88	5-19-88 8-31-89 9-05-89	e97 10 *1.7

DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at miscellaneous sites during water year 1989--Continued

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
Raritan River basin--Continued						
01400870 Stony Brook tributary No. 3	Stony Brook	Lat 40°24'12", long 74°48'07" Mercer County, Hydrologic Unit 02030105, at bridge on Van Dyke Road, 0.2 mi east of Stony Brook Road, and 2.0 mi northwest of Hopewell.	e2.6	1970, 1987-88	--	--
01400880 Stony Brook	Millstone River	Lat 40°22'53", long 74°48'11", Mercer County, Hydrologic Unit 02030105, downstream of unnamed tributary, 0.8 mi downstream of bridge on Lambertville-Hopewell Turn- pike, and 1.4 mi east of Woodsville.	e15.2	1985-88	--	--
01400990 Palmer Lake outlet stream	Stony Brook	Lat 40°21'16", long 74°41'52", Mercer County, Hydrologic Unit 02030105, at bridge on Elm Road at Princeton, 0.6 mi downstream of Palmer Lake, and 0.6 mi upstream of mouth.	e2.2	1987-88	--	--
01400998 Stony Brook tributary No. 6	Stony Brook	Lat 40°20'03", long 74°41'52", Mercer County, Hydrologic Unit 02030105, at bridge on private estate, 300 ft upstream of mouth, 0.6 mi north of Coxs Corner, and 1.8 mi southwest of Princeton.	e1.35	1987-88	--	--
01401400 Heathcote Brook	Millstone River	Lat 40°22'10", long 74°36'59", Middlesex County, Hydrologic Unit 02030105, at bridge on Mapleton Road, at Former Penn Central rail- road bridge, 0.3 mi south of Kingston, and 0.4 mi upstream of mouth.	9.0	1979-84	6-09-89	37
01405340 Manalapan Brook	South River	Lat 40°17'46", long 74°23'53", Middlesex County, Hydrologic Unit 02030105, at bridge on Federal Road, 2.0 mi west of Englishtown, 2.6 mi north of Manalapan, and 3.0 mi down- stream from Still House Brook.	20.9	1979-81, 1986-88	9-17-89	33
Navasink River basin						
01407253 Willow Brook	Hop Brook	Lat 40°19'47", long 74°10'26", Monmouth County, Hydrologic Unit 02030104, at bridge on Willow Brook Road, 1.2 mi southeast of Holmdel, 1.3 mi northeast of Vanderburg, and 1.6 mi northwest of Sugar Loaf Hill.	7.56	1979, 1981, 1983	10-06-88	*2.5
Manasquan River basin						
01407997 Marsh Bog Brook	Manasquan River	Lat 40°10'01", long 74°09'33", Monmouth County, Hydrologic Unit 02040301, at bridge on Squankum-Yellow Brook Road at Squankum, 0.2 mi upstream of mouth, and 0.6 mi north of Lower Squankum.	4.91	1966, 1972-74, 1978-82, 1985-88	9-18-89	30
Mullica River basin						
01409416 Hammonton Creek	Mullica River	Lat 39°38'02", long 74°43'05", Atlantic County, Hydrologic Unit 02040301, at bridge on Chestnut Road, 0.4 mi south of Wescoatville, and 1.6 mi upstream from Norton Branch.	9.57	1974, 1978-81, 1983, 1985-88	8-11-89	16

Discharge measurements made at miscellaneous sites during water year 1989--Continued

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft ³ /s)
Mullica River basin--Continued						
01409815 West Branch Wading River	Wading River	Lat 39°40'30", long 74°32'28", Burlington County, Hydrologic Unit 02040301, at bridge on State Highway 563 in Maxwell, 1.6 mi southeast of Washington, 1.8 mi southwest of Jenkins, and 2.2 mi upstream from confluence with Oswego River.	85.9	1985-88	9-12-89	*58
Absecon Creek basin						
01410500 Absecon Creek	Absecon Bay	Lat 39°25'45", long 74°31'16", Atlantic County, Hydrologic Unit 02040302, on right bank 30 ft downstream from Doughty Pond Dam of Atlantic City Water Department, 1.0 mi west of Absecon, and 3.4 mi upstream of mouth.	16.6	1923-29c, 1933-38c, 1946-85df, 1987-88f	6-21-89 9-11-89	15 10
Great Egg Harbor River basin						
01410784 Great Egg Harbor River	Great Egg Harbor Bay	Lat 39°44'02", long 74°57'05", Camden County, Hydrologic Unit 02040302, at bridge on New Freedom Road in Winslow Township, 0.7 mi northeast of Blackwood-New Brooklyn Road, and 1.5 mi northeast of Sicklerville.	15.1	1971-81 1985-87	8-15-89	26
01410820 Great Egg Harbor River	Great Egg Harbor Bay	Lat 39°40'09", long 74°54'49", Camden County, Hydrologic Unit 02040302, at bridge on Broad Lane Road, 2.1 mi downstream from confluence of Fourmile Branch, and 1.9 mi southwest of Blue Anchor.	37.2	1972-80d, 1985-88	8-11-89	43
01411110 Great Egg Harbor River	Great Egg Harbor Bay	Lat 39°30'50", long 74°46'47", Atlantic County, Hydrologic Unit 02040302, at bridge on U.S. Route 322 in Weymouth, 0.5 mi upstream from Deep Run, and 20.9 mi upstream of mouth.	154	1978-81, 1985-88	8-15-89	340

a Not previously published.

b Discharge records published in reports of the New Jersey Department of Environmental Protection.

c Discharge records on file in U.S. Geological Survey Office, West Trenton, New Jersey.

d Operated as continuous-recording gaging station.

e Revised.

f Also a tidal crest-stage partial-record station.

ELEVATIONS AT TIDAL CREST-STAGE STATIONS

The following table contains annual maximum elevations for tidal crest-stage stations. The information is obtained from a crest-stage gage or a water-stage recorder located at each site. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. All stages are elevations above National Geodetic Vertical Datum of 1929 unless otherwise noted. Only the maximum elevation is given. Information on some other high elevations may have been obtained but is not published herein. The years given in the period of record represent water years for which the annual maximum elevation has been determined.

Annual maximum elevation at tidal crest-stage partial-record stations during water year 1989

Station No.	Station name	Location	Period of record	Annual Maximum	
				Date	Elevation NGVD* (ft)
01406700	Raritan River at Perth Amboy, NJ	Lat 40°30'31", long 74°17'30", Middlesex County, Hydrologic Unit 02030104, on upstream left bridge pier of Victory Bridge on State Route 35 in Perth Amboy, 0.5 mi downstream from Garden State Parkway bridge, and 1.5 mi upstream from mouth of Raritan River.	1967-70†, 1980-89	9-19-89	6.62
01407030	Luppataong Creek at Keyport, NJ	Lat 40°26'08", long 74°12'27", Monmouth County, Hydrologic Unit 02030104, on left bank upstream side of Front Street bridge in Keyport, 2.0 mi northwest of Matawan, and 0.1 mi upstream from mouth.	1980-89	9-19-89	6.69
01409145	Manahawkin Bay near Manahawkin, NJ	Lat 39°40'13", long 74°12'54", Ocean County, Hydrologic Unit 02040301, at west end of State Route 72 bridge over Manahawkin Bay, 2.5 mi northwest of Ship Bottom, and 3.1 mi southeast of Manahawkin.	1965-89	9-19-89	3.62
01409285	Little Egg Harbor at Beach Haven, NJ	Lat 39°33'10", long 74°15'07", Ocean County, Hydrologic Unit 02040301, in Beach Haven at U.S. Coast Guard station, 6.0 mi southeast of Tuckerton and 7.4 mi southeast of Ship Bottom.	1979-89	9-19-89	4.15
01409510	Batsto River at Pleasant Mills, NJ	Lat 39°37'55", long 74°38'40", Ocean County, Hydrologic Unit 02040301, on right bank, 1.0 mi southeast of Pleasant Mills, and 0.5 mi upstream from mouth.	1958-89	9-19-89	4.36
01410100	Mullica River near Port Republic, NJ	Lat 39°33'12", long 74°27'46", Atlantic County, Hydrologic Unit 02040301, on right bank on bulkhead piling at south end of U.S. Route 9 and Garden State Parkway bridge over Mullica River, 2.8 mi northeast of Port Republic, and 2.8 mi south of New Gretna.	1965-89	9-19-89	6.00
01410500	Absecon Creek at Absecon, NJ	Lat 39°25'45", long 74°31'16", Atlantic County, Hydrologic Unit 02040302, on right abutment of bridge on Mill Road, 50 ft downstream of former gaging station, 1 mi west of Absecon, and 3.4 mi upstream from mouth.	1923-29†, 1933-38†, 1946-84†, 1985-89	9-19-89	4.99
01410570	Beach Thorofare at Atlantic City, NJ	Lat 39°21'56", long 74°26'44", Atlantic County, Hydrologic Unit 02040302, on west abutment south side of AMTRAK railroad swivel bridge in Atlantic City, 0.5 mi northeast of Bader Field airport, and 2.7 mi northeast of Ventnor City.	1978†, 1969-89	9-19-89	5.71

Annual maximum elevation at tidal crest-stage partial-record stations during water year 1989--Continued

Station No.	Station name	Location	Period of record	Annual Maximum	
				Date	Elevation NGVD* (ft)
01411300	Tuckahoe River at Head of River, NJ	Lat 39°18'25", long 74°49'15", Cape May County, Hydrologic Unit 02040302, downstream right abutment of highway bridge on State Route 49, 0.2 mi upstream from McNeals Branch, 0.4 mi southeast of Head of River, and 3.7 mi west of Tuckahoe.	1979-89†	7-17-89	4.49
01411320	Great Egg Harbor Bay at Ocean City, NJ	Lat 39°17'03", long 74°34'41", Cape May County, Hydrologic Unit 02040302, on bulkhead at west end of 7th Street (prior to October 1974, gage was located at 5th Street), Ocean City, and 2.5 mi southeast of Somers Point.	1965-89	9-19-89	6.12
01411360	Great Channel at Stone Harbor, NJ	Lat 39°03'26", long 74°45'53", Cape May County, Hydrologic Unit 02040302, on boat-ramp piling near east end of bridge at west end of Borough of Stone Harbor, 3.7 mi southeast of Cape May Court House, and 3.9 mi southwest of Avalon.	1965-89	9-19-89	5.81

* National Geodetic Vertical Datum of 1929 (NGVD).

† Operated as a continuous-record gaging station.

ATLANTIC COUNTY

391827074371001. Local I.D., Jobs Point Obs. NJ-WRD Well Number, 01-0578.

LOCATION.--Lat 39°18'26", long 74°37'09", Hydrologic Unit 02040302, on the west side of the Garden State Parkway at interchange 29, Somers Point.

Owner: U.S. Geological Survey.

AQUIFER.--Atlantic City 800-foot sand of the Kirkwood Formation of Miocene age.

WELL CHARACTERISTICS.--Drilled artesian observation well, diameter 8 in, depth 680 ft, screened 670 to 680 ft.

INSTRUMENTATION.--Digital water-level recorder--60-minute punch. Water-level extremes recorder, May 1977 to

February 1984.

DATUM.--Land-surface datum is 10.00 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top edge of recorder shelf, 9.34 ft above land-surface datum.

REMARKS.--Water level affected by tidal fluctuation and nearby pumping.

PERIOD OF RECORD.--October 1959 to June 1975, May 1977 to current year. Records for 1975 to 1980 are unpublished and are available in files of New Jersey District Office.

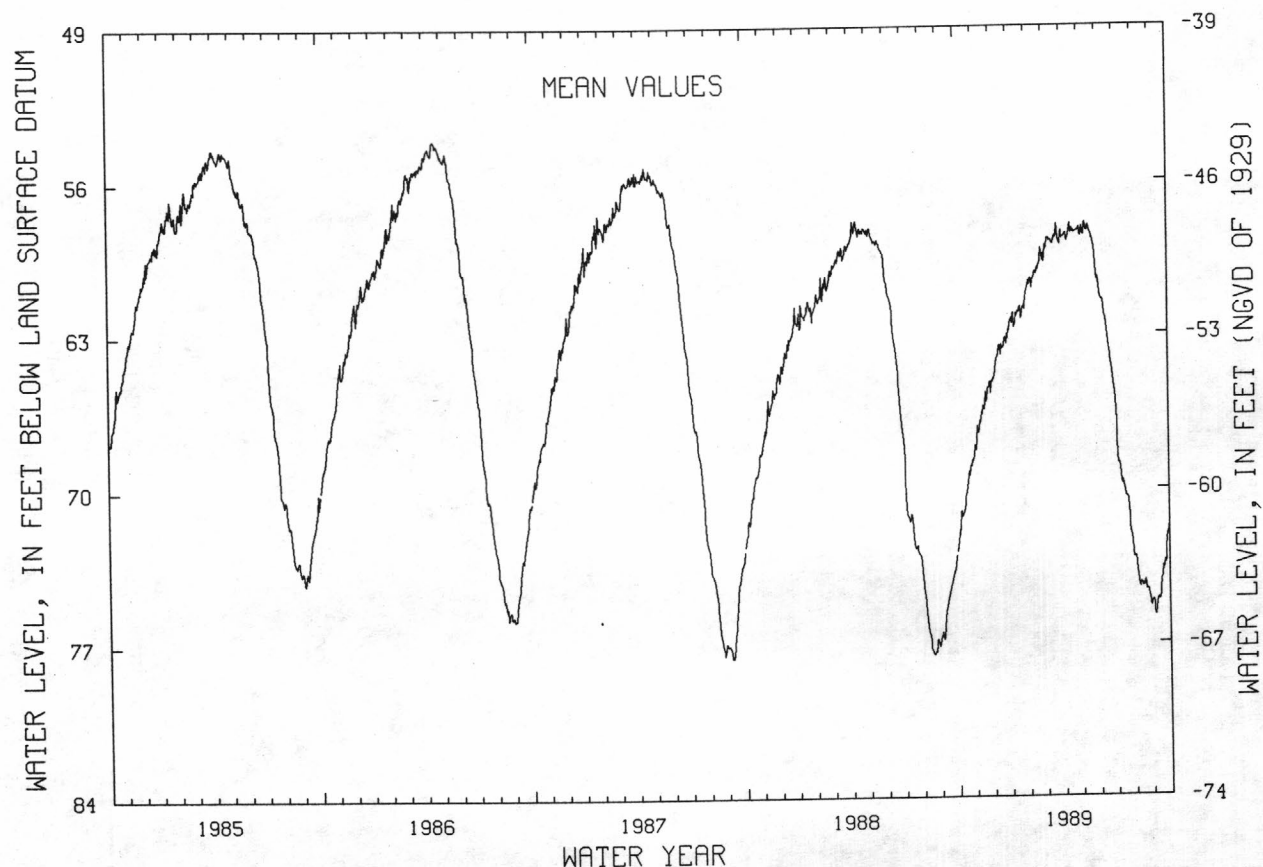
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 29.10 ft below land-surface datum, Apr. 13, 1961; lowest, 78.41 ft below land-surface datum, Sept. 8, 1987.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	71.85	67.15	64.91	62.53	60.57	59.15	58.59	58.37	61.18	68.53	73.42	75.75
10	71.24	66.91	64.08	62.58	60.55	58.66	58.81	57.97	61.49	69.43	74.49	75.00
15	70.72	66.59	63.63	61.98	60.18	58.75	58.18	58.32	62.32	69.86	74.42	74.61
20	69.87	65.62	63.59	61.76	60.08	58.55	58.38	58.35	63.61	70.33	74.40	73.64
25	68.90	65.49	63.25	61.82	59.31	58.31	58.41	58.81	64.45	71.69	74.65	72.84
EOM	68.52	65.24	62.82	60.99	59.36	58.29	58.39	60.56	65.68	73.16	75.17	71.60
MEAN	70.40	66.49	63.84	62.04	60.19	58.78	58.45	58.62	62.79	70.01	74.33	74.12
WTR YR 1989	MEAN 65.04 HIGH 56.91 MAY 6 LOW 76.38 SEP 6											

NJ-WRD WELL NO.01-0578



ATLANTIC COUNTY

391955074250701. Local I.D., ACOW 1 Obs. NJ-WRD Well Number 01-0711.

LOCATION.--Lat 39°19'55", long 74°25'07", in the Atlantic Ocean, 1.9 miles offshore of Atlantic City

Owner: U.S. Geological Survey.

AQUIFER.--Atlantic City 800-foot sand of the Kirkwood Formation of Miocene age.

WELL CHARACTERISTICS.-- Drilled artesian observation well, diameter 4 in, depth 871 ft, screened 820 to 850 ft.

INSTRUMENTATION.--Digital data logger with differential pressure transducers. Recorder located on sea floor, about 33 ft below NGVD.

DATUM.-- 0.00 ft, National Geodetic Vertical Datum of 1929.

Measuring point: Deck of drilling platform at time when transducers were set at bottom of well.

REMARKS.--Water level affected by tidal fluctuation and nearby pumping. Elevation of differential pressure transducers was determined by direct measurement from the deck of the drilling platform. Elevation of the deck of the drilling platform was determined by survey by the U.S. Geological Survey, National Mapping Division.

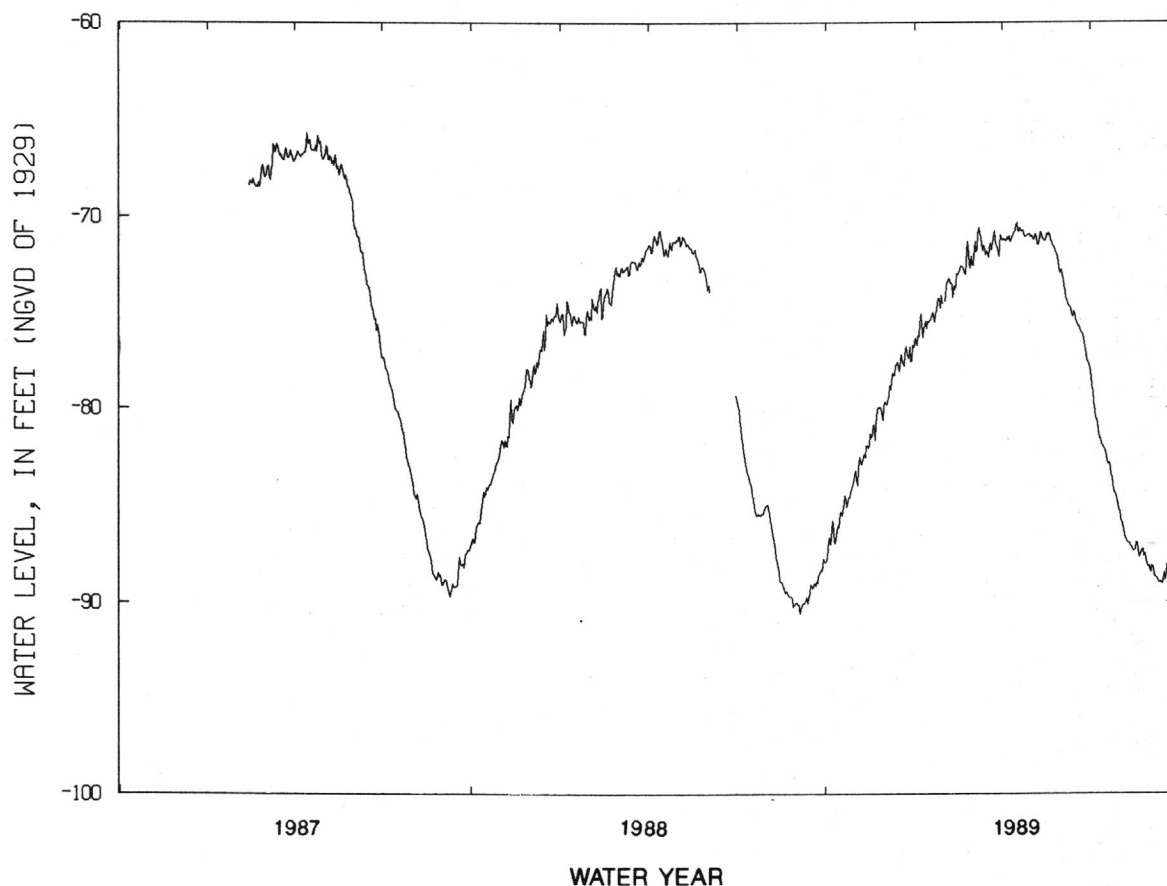
PERIOD OF RECORD.--February 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 63.72 ft below NGVD, April 14, 16, 1987; lowest, 92.42 ft below NGVD, August 30, 1988.

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	-86.62	-82.53	-79.35	-76.29	-73.25	-71.89	-71.28	-70.95	-73.95	-79.74	-86.28	-88.38
10	-86.87	-82.40	-78.29	-75.87	-73.63	-71.10	-71.25	-70.83	-74.69	-81.37	-86.98	-88.96
15	-86.12	-81.95	-77.90	-75.52	-73.03	-72.03	-70.50	-71.31	-75.08	-82.06	-87.39	-89.07
20	-84.94	-80.86	-77.61	-75.03	-72.77	-71.39	-70.76	-71.04	-75.78	-82.94	-87.37	-88.44
25	-84.60	-80.01	-77.36	-74.27	-71.64	-71.30	-71.06	-71.67	-76.61	-84.01	-87.31	-87.75
EOM	-83.49	-79.88	-76.88	---	-72.10	-71.11	-71.11	-72.96	-77.73	-85.28	-88.13	-87.06
MEAN	-85.67	-81.67	-78.00	-75.42	-73.04	-71.59	-70.97	-71.42	-75.36	-82.08	-87.10	-88.38
WTR YR 1989	MEAN -78.44 MAX -70.34 MIN -89.07											



ATLANTIC COUNTY

392017074300201. Local I.D., Margate Firehouse TW1. NJ-WRD Well Number, 01-0834.

LOCATION.--Lat 39°20'17", long 74°30'02", Hydrologic Unit 02040302, behind Margate Firehouse no. 2, Fremont Avenue, Margate City.

Owner: U.S. Geological Survey.

AQUIFER.--Piney Point aquifer of Eocene age.

WELL CHARACTERISTICS.--Drilled artesian observation well, diameter 4 in, depth 997 ft, screened 970 to 991 ft.

INSTRUMENTATION.--Digital water-level recorder--60-minute punch.

DATUM.--Land-surface datum is 5 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring point: Top edge of recorder shelf, 2.00 ft above land-surface datum.

REMARKS.--Water level affected by tidal fluctuation. Missing record from May 24 to July 19 and from August 4 to September 30 was due to recorder malfunction.

PERIOD OF RECORD.--May 1988 to current year. Records for 1988 are unpublished and are available in files of New Jersey District Office.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 31.05 ft below land-surface datum, June 2, 1988; lowest, 33.99 ft below land-surface datum, Feb. 9, 1989.

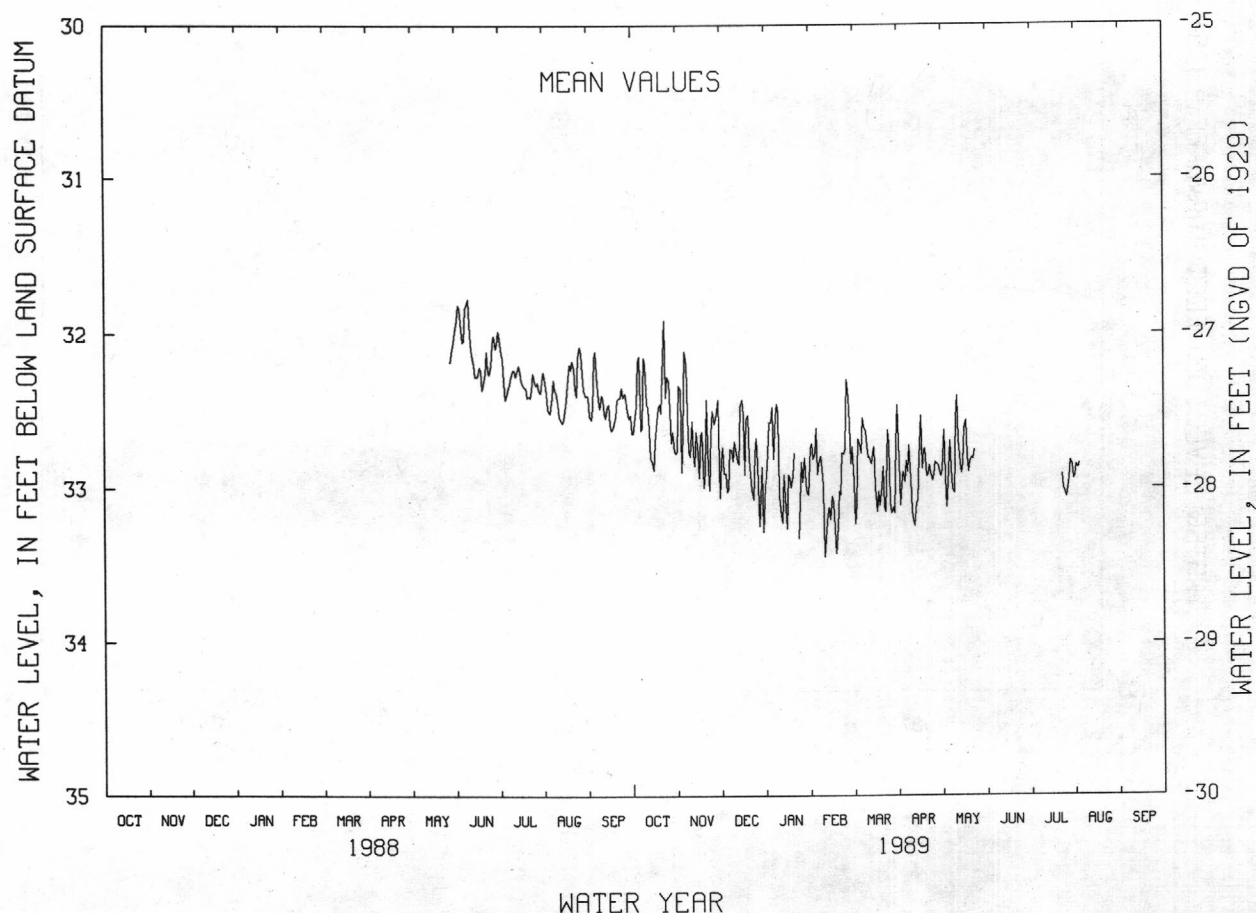
WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	32.14	32.11	33.00	32.81	32.84	32.72	32.96	32.97	---	---	---	---
10	32.45	32.56	32.69	33.17	33.27	32.73	33.15	32.55	---	---	---	---
15	32.88	32.93	32.52	32.91	33.09	32.73	32.80	32.84	---	---	---	---
20	32.51	32.42	32.91	---	33.04	32.99	32.92	32.82	---	32.71	---	---
25	32.30	32.58	32.84	32.96	32.41	32.71	32.91	---	---	33.06	---	---
EOY	32.76	32.82	32.92	32.71	32.73	32.46	32.92	---	---	32.92	---	---
MEAN	32.50	32.65	32.83	32.87	32.93	32.88	32.91	32.80	---	---	---	---

WTR YR 1989 HIGH 31.22 OCT 22 LOW 33.99 FEB 9

NJ-WRD WELL NO.01-0834



ATLANTIC COUNTY

392153074250101. Local I.D., Galen Hall Obs. NJ-WRD Well Number, 01-0037.

LOCATION.--Lat 39°21'51", long 74°24'59", Hydrologic Unit 02040302, near the intersection of Pacific and Congress Avenues, Atlantic City.

Owner: Atlantic City Municipal Utilities Authority.

AQUIFER.--Atlantic City 800-foot sand of the Kirkwood Formation of Miocene age.

WELL CHARACTERISTICS.--Drilled artesian observation well, diameter 6 in, depth 837 ft, screened 782 to 837 ft.

INSTRUMENTATION.--Digital water-level recorder--60-minute punch. Water-level extremes recorder, May 1977 to July 1980.

DATUM.--Land-surface datum is 9.54 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top edge of recorder shelf, 2.75 ft above land-surface datum.

REMARKS.--Water level affected by tidal fluctuation and nearby pumping. Water level affected by USGS aquifer test,

August 16-23, 1985. Well damaged by construction equipment in August 1987 and rehabilitated November 1987.

PERIOD OF RECORD.--January 1949 to August 1975, May 1977 to current year. Records for 1949 to 1975 are unpublished and are available in files of New Jersey District Office.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 52.58 ft below land-surface datum, Mar. 7, 1962; lowest, 105.70 ft below land-surface datum, Aug. 22, 1985. (see remarks)

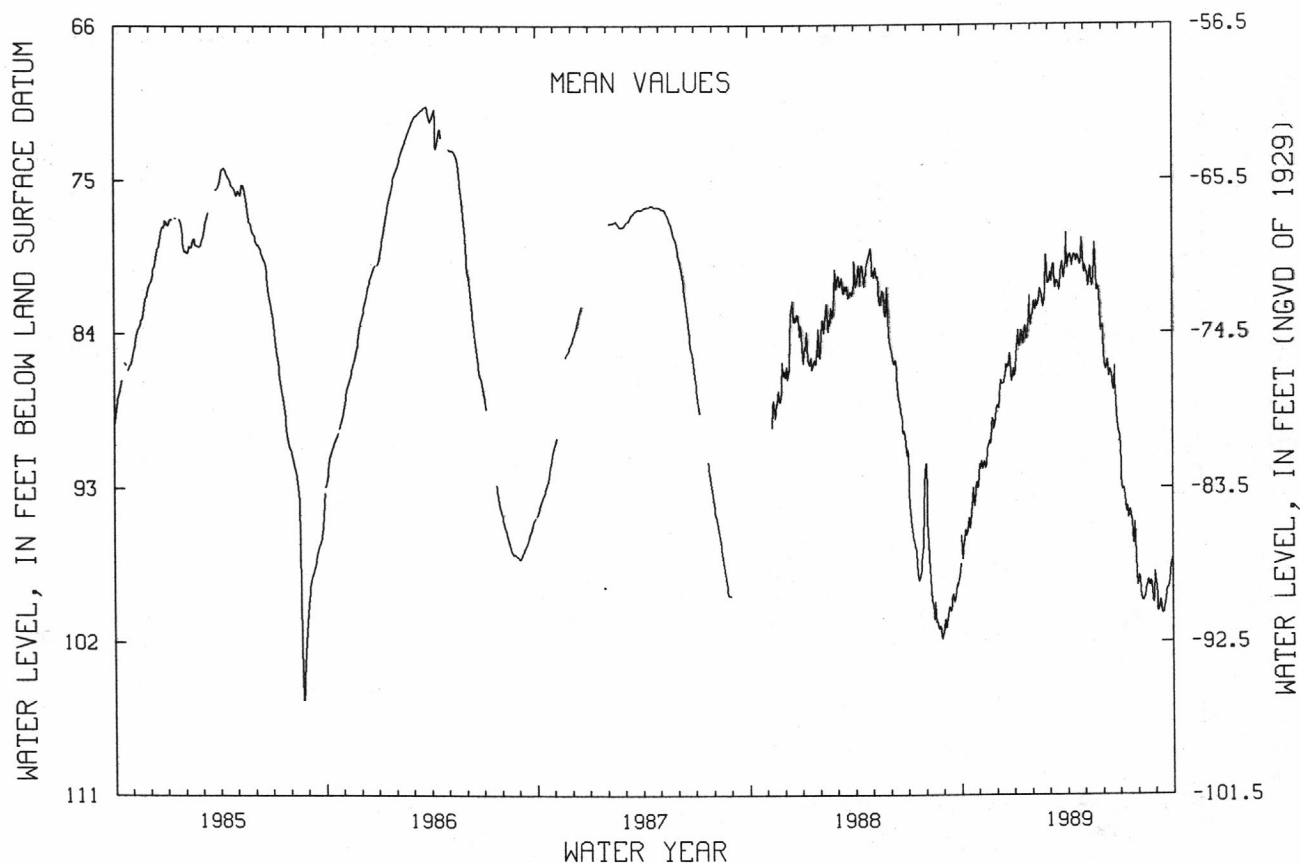
WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	96.02	91.44	88.39	84.85	82.57	80.71	79.60	80.46	85.85	92.84	98.34	100.20
10	95.75	91.44	86.73	84.78	82.46	80.08	80.10	80.56	85.56	93.54	99.58	99.92
15	94.76	90.76	86.55	84.42	81.57	80.96	79.39	81.31	86.13	94.14	98.98	100.11
20	94.03	90.22	86.00	83.59	82.50	81.27	79.46	79.61	87.33	94.57	98.55	98.81
25	93.69	88.92	85.59	83.44	79.47	79.84	79.92	81.28	88.00	96.05	98.68	98.44
EOM	92.87	88.91	86.08	83.04	81.13	78.14	80.20	83.78	89.83	98.65	98.22	97.05
MEAN	94.72	90.71	86.75	84.19	81.85	80.60	79.60	81.03	86.66	94.36	98.82	99.16

WTR YR 1989 MEAN 88.25 HIGH 77.91 MAR 31 LOW 100.44 SEP 13,14

NJ-WRD WELL NO.01-0037



ATLANTIC COUNTY

392754074270101. Local I.D., Oceanville 1 Obs. NJ-WRD Well Number, 01-0180.

LOCATION.--Lat 39°27'54", long 74°27'01", Hydrologic Unit 02040302, at Edwin B. Forsythe National Wildlife Refuge, Brigantine Division, Oceanville, Galloway Township.

Owner: U.S. Geological Survey.

AQUIFER.--Atlantic City 800-foot sand of the Kirkwood Formation of Miocene age.

WELL CHARACTERISTICS.--Drilled artesian observation well, diameter 8 in, depth 570 ft, screened 560 to 570 ft.

INSTRUMENTATION.--Digital water-level recorder--60-minute punch. Water-level extremes recorder, April 1977 to February 1984.

DATUM.--Land-surface datum is 27.17 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top edge of bushing, 2.30 ft above land-surface datum.

REMARKS.--Water level affected by tidal fluctuation and nearby pumping.

PERIOD OF RECORD.--October 1959 to August 1975, April 1977 to current year. Records for 1975 to 1981 are unpublished and are available in files of New Jersey District Office.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 33.62 ft below land-surface datum, Apr. 13, 1961; lowest, 68.36 ft below land-surface datum, Sept. 29, 30, 1988.

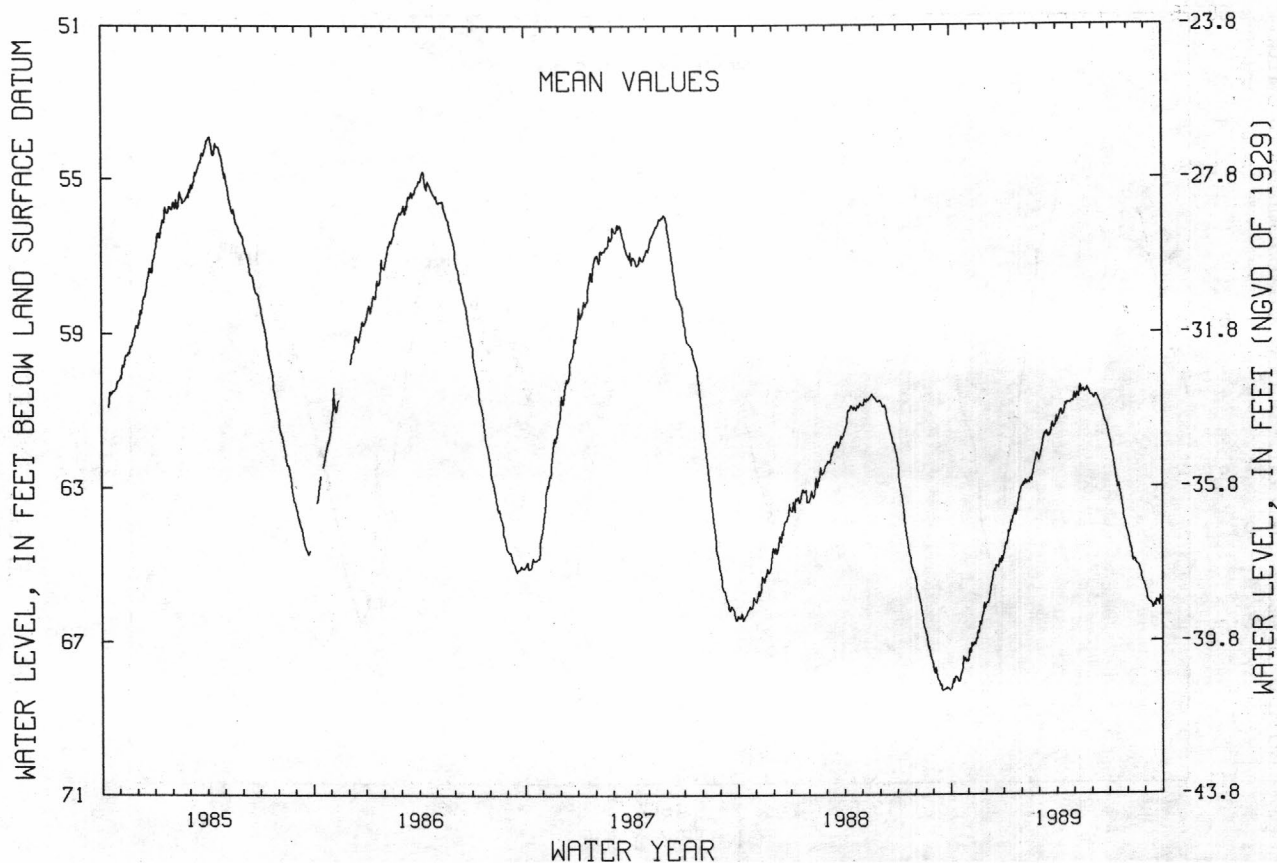
WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	67.99	67.09	65.98	64.49	62.90	62.10	61.20	60.68	60.72	62.09	64.46	65.94
10	67.91	67.04	65.50	64.15	62.90	61.70	61.12	60.48	60.59	62.57	64.93	66.01
15	68.05	66.93	65.11	63.76	62.76	61.57	60.99	60.55	60.81	63.03	64.95	66.09
20	67.83	66.49	65.04	63.55	62.65	61.67	60.84	60.51	61.15	63.21	65.03	65.93
25	67.44	66.29	64.86	63.37	62.18	61.34	60.81	60.47	61.36	63.74	65.32	66.06
EOM	67.51	66.10	64.77	62.98	62.20	61.16	60.71	60.65	61.72	64.17	65.64	65.96
MEAN	67.82	66.76	65.30	63.81	62.69	61.70	60.98	60.55	60.98	62.99	64.96	65.97

WTR YR 1989 MEAN 63.72 HIGH 60.17 MAY 11 LOW 68.31 OCT 1

NJ-WRD WELL NO.01-0180



ATLANTIC COUNTY

393232074263901, Local I.D., FAA-TW-Pomona Obs. NJ-WRD Well Number, 01-0703.

LOCATION.--Lat 39°26'39", long 74°32'32", Hydrologic Unit 02040302, at the NAFEC Atlantic City Airport, Egg Harbor Township.

Owner: U.S. Geological Survey

AQUIFER.--Atlantic City 800-foot sand of the Kirkwood Formation of Miocene age.

WELL CHARACTERISTICS.--Drilled artesian observation well, diameter 4 in, depth 570 ft, screened 560 to 570 ft.

INSTRUMENTATION.--Digital water-level recorder--60 minute punch.

DATUM.--Land-surface datum is 38 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring point: Top edge of recorder shelf, 1.75 ft above land-surface datum.

REMARKS.--Water level affected by nearby pumping.

PERIOD OF RECORD.--October 1985 to current year. Records for 1985 to 1986 are unpublished and are available in files of New Jersey District Office.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 69.74 ft below land-surface datum, March 18, 1986; lowest, 85.26 ft below land-surface datum, Sept. 29, 1988.

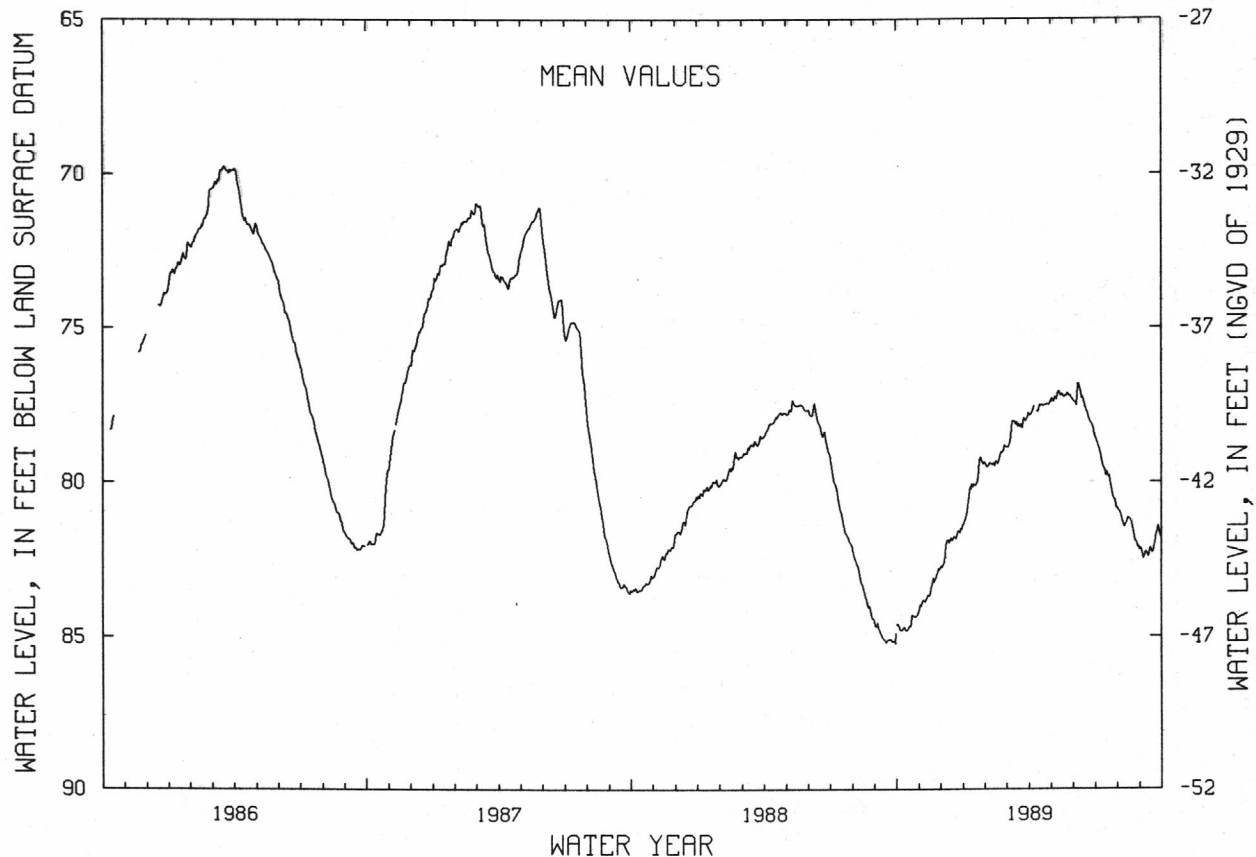
WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	84.72	83.89	82.67	81.11	79.46	78.76	77.76	77.37	77.53	78.87	81.08	82.48
10	84.73	83.82	81.87	80.17	79.44	78.03	---	77.15	76.93	79.29	81.46	82.24
15	84.79	83.69	81.82	80.06	79.31	78.07	77.59	77.20	77.36	79.78	81.15	82.13
20	84.67	83.21	81.76	80.01	79.23	78.23	77.54	77.21	77.77	79.79	81.36	82.03
25	84.32	83.02	81.54	79.27	78.94	77.94	77.49	77.19	78.08	80.44	81.92	81.61
EOM	84.29	82.81	81.38	79.42	78.87	77.77	77.40	77.36	78.47	80.83	82.18	81.88
MEAN	84.59	83.49	81.95	80.10	79.27	78.24	77.60	77.24	77.58	79.70	81.44	82.08

WTR YR 1989 MEAN 80.29 HIGH 76.77 JUN 7,8 LOW 84.83 OCT 7,14

NJ-WRD WELL NO.01-0703



ATLANTIC COUNTY

393333074442401. Local I.D., Scholler 1 Obs. NJ-WRD Well Number, 01-0256.

LOCATION.--Lat 39°33'33", long 74°44'26", Hydrologic Unit 02040302, at Scholler Brothers plant, near intersection of Weymouth and Second Roads, Elwood, Hamilton Township.

Owner: Scholler Brothers Incorporated.

AQUIFER.--Kirkwood-Cohansey aquifer system of Miocene age.

WELL CHARACTERISTICS.--Drilled water-table observation well, diameter 8 in, depth 275 ft, screened 254 to 275 ft.

INSTRUMENTATION.--Digital water-level recorder--60-minute punch. Water-level extremes recorder, May 1977 to April 1984.

DATUM.--Land-surface datum is 93.19 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top edge of recorder shelf, 2.66 ft above land-surface datum.

PERIOD OF RECORD.--April 1962 to August 1975, May 1977 to current year. Records for 1962 to 1975 are unpublished and are available in files of New Jersey District Office.

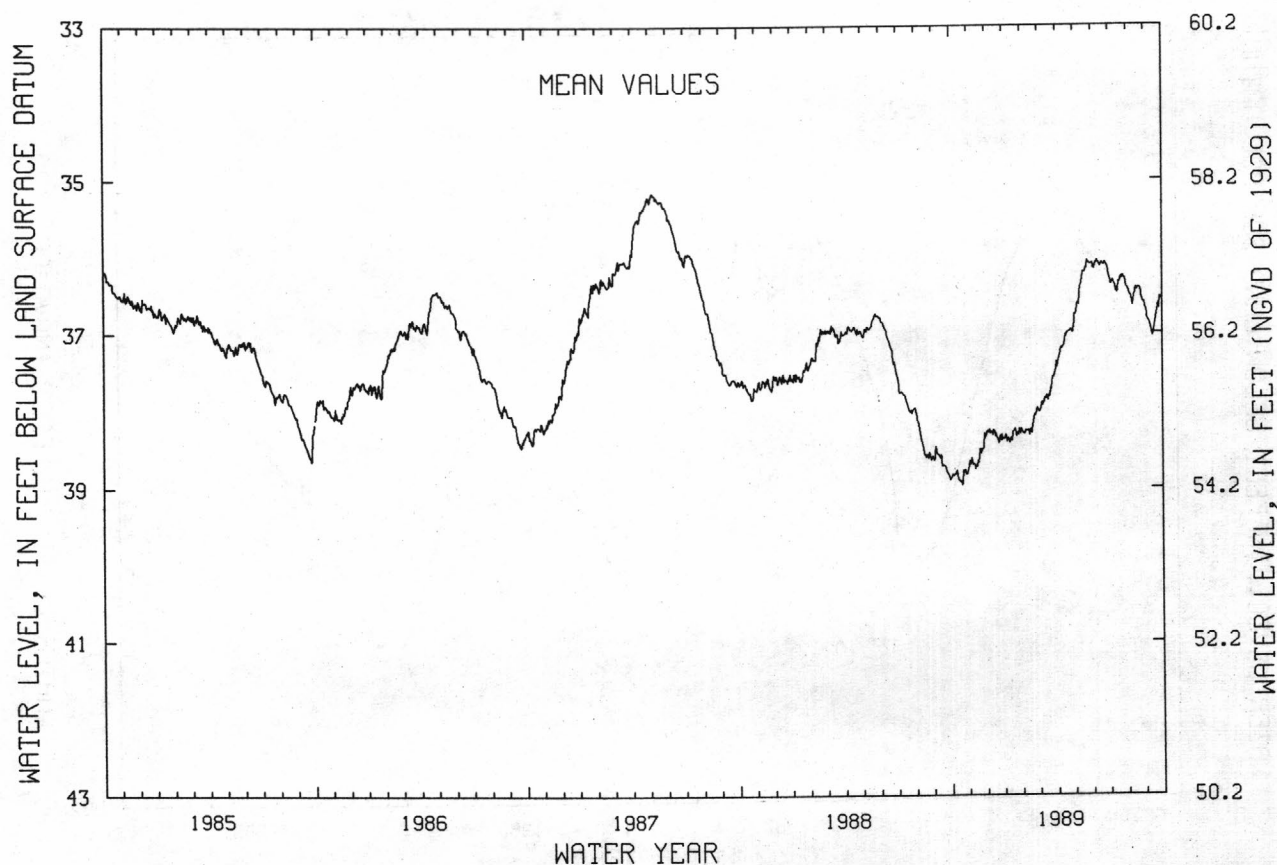
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 27.18 ft below land-surface datum, Mar. 20, 1963; lowest, 39.56 ft below land-surface datum, Sept. 13, 1966.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	38.84	38.61	38.28	38.40	38.29	37.97	37.34	36.73	36.17	36.36	36.50	36.82
10	38.80	38.68	38.27	38.42	38.26	37.89	37.20	36.49	36.05	36.37	36.64	36.93
15	38.90	38.72	38.27	38.28	38.24	37.80	37.09	36.29	36.13	36.48	36.45	36.98
20	38.96	38.51	38.36	38.23	38.20	37.81	37.00	36.18	36.10	36.30	36.41	36.74
25	38.76	38.49	38.32	38.32	38.02	37.57	36.96	36.09	36.09	36.27	36.52	36.67
EOM	38.82	38.33	38.36	38.25	37.99	37.37	36.90	36.09	36.26	36.41	36.66	36.54
MEAN	38.84	38.60	38.32	38.32	38.19	37.78	37.12	36.35	36.11	36.35	36.50	36.79
WTR YR 1989	MEAN 37.44 HIGH 36.00 MAY 24 LOW 39.00 OCT 20											

NJ-WRD WELL NO.01-0256



BURLINGTON COUNTY

395122074301701. Local I.D., Butler Place 1 Obs. NJ-WRD Well Number, 05-0683.

LOCATION.--Lat 39°51'22", long 74°30'17", Hydrologic Unit 02040301, in Lebanon State Forest, Woodland Township.

Owner: U.S. Geological Survey.

AQUIFER.--Potomac-Raritan-Magothy aquifer system, undifferentiated, of Cretaceous age.

WELL CHARACTERISTICS.--Drilled artesian observation well, diameter 8 in, depth 2,117 ft, screened 2,102 to 2,117 ft.

INSTRUMENTATION.--Digital water-level recorder--60-minute punch.

DATUM.--Land-surface datum is 140.66 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top of coupling, 2.80 ft above land-surface datum.

PERIOD OF RECORD.--October 1964 to August 1975, March 1977 to current year. Records for 1964 to 1977 are unpublished and are available in files of New Jersey District Office.

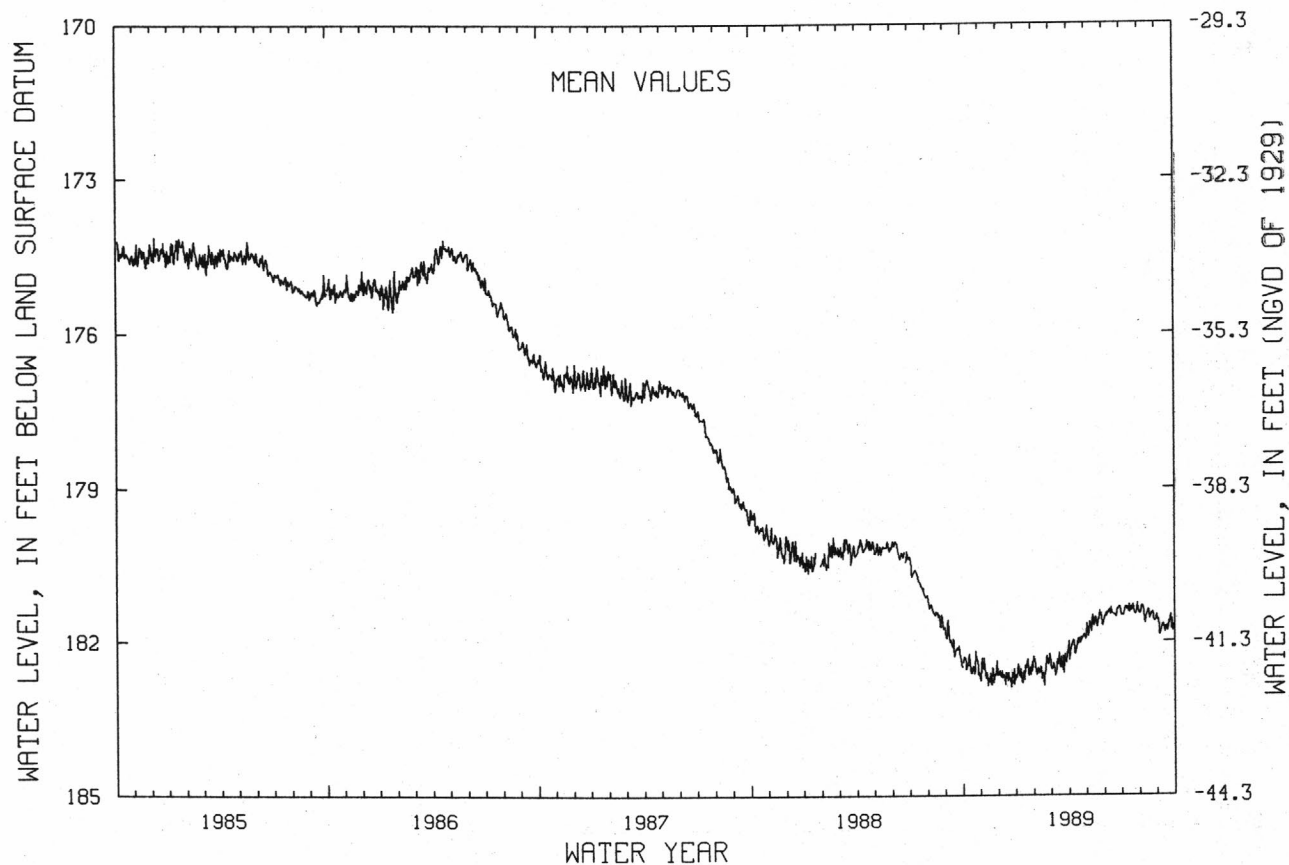
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 143.20 ft below land-surface datum, Feb. 25, 1965; lowest, 182.96 ft below land-surface datum, Dec. 22, 23, 1988.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	182.41	182.32	182.71	182.69	182.63	182.42	182.14	181.83	181.51	181.45	181.30	181.87
10	182.35	182.61	182.66	182.80	182.60	182.55	182.18	181.60	181.37	181.33	181.65	181.66
15	182.58	182.80	182.62	182.47	182.61	182.23	182.06	181.64	181.45	181.44	181.43	181.71
20	182.64	182.51	182.75	182.35	182.58	182.52	182.04	181.61	181.51	181.27	181.49	181.61
25	182.41	182.67	182.62	182.66	182.42	182.25	181.91	181.50	181.37	181.48	181.57	181.79
EOM	182.77	182.63	182.67	182.36	182.41	182.00	181.90	181.57	181.50	181.45	181.59	181.76
MEAN	182.49	182.62	182.70	182.57	182.53	182.42	182.05	181.64	181.44	181.40	181.48	181.72
WTR YR 1989	MEAN 182.08 HIGH 181.22 JUL 28 LOW 182.96 DEC 22,23											

NJ-WRD WELL NO.05-0683



BURLINGTON COUNTY

395122074301702. Local I.D., Butler Place 2 Obs. NJ-WRD Well Number, 05-0684.

LOCATION.--Lat 39°51'22", long 74°30'17", Hydrologic Unit 02040301, in Lebanon State Forest, Woodland Township.

Owner: U.S. Geological Survey.

AQUIFER.--Kirkwood-Cohansey aquifer system of Miocene age.

WELL CHARACTERISTICS.--Drilled water-table observation well, diameter 4 in, depth 170 ft, screened 160 to 170 ft.

INSTRUMENTATION.--Water-level extremes recorder, March 1977 to current year. Water-level recorder, May 1965 to April 1975.

DATUM.--Land-surface datum is 140.82 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Front edge of cutout in recorder housing, 2.67 ft above land-surface datum.

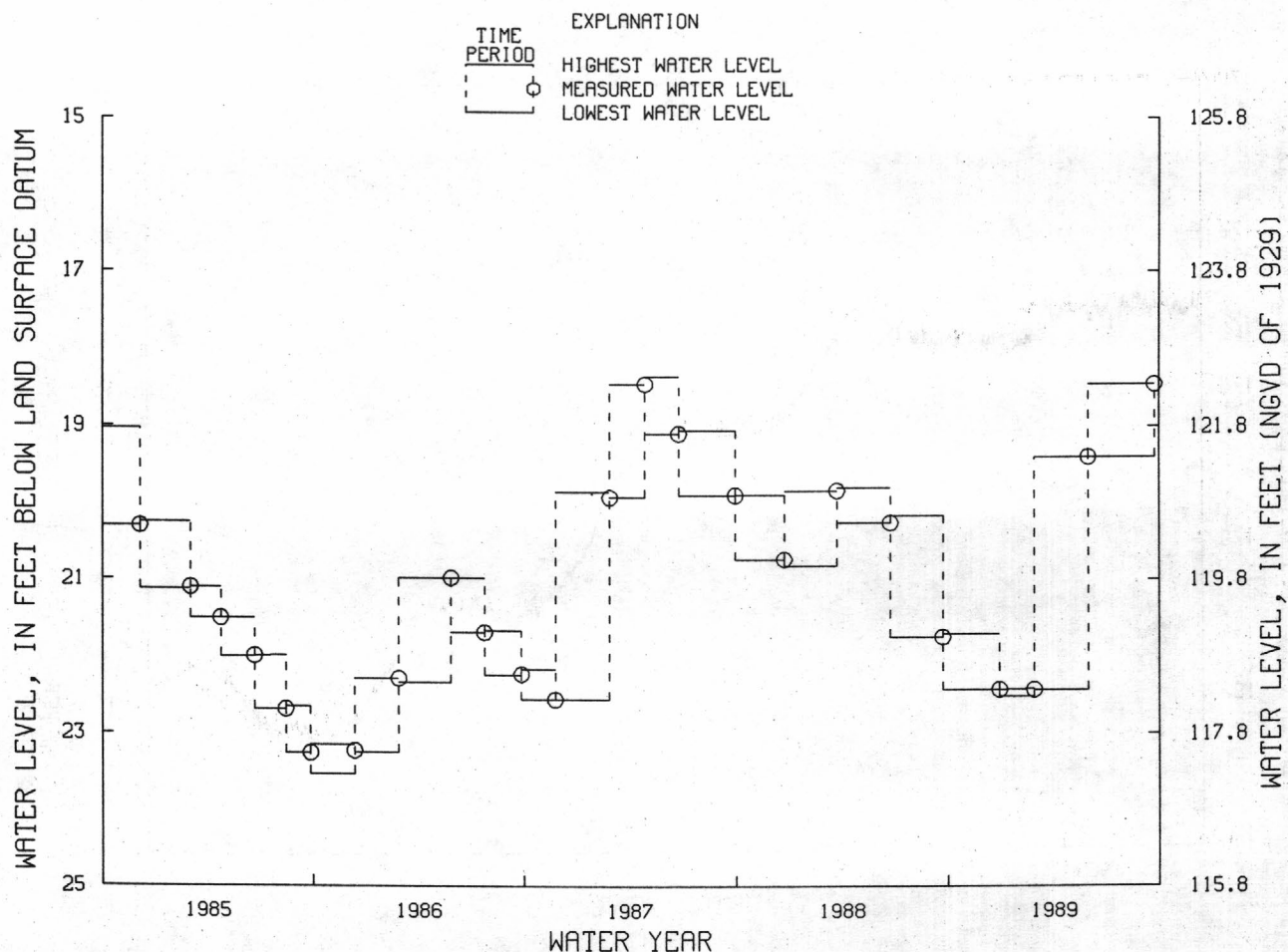
PERIOD OF RECORD.--May 1965 to April 1975, March 1977 to current year. Records for 1965 to 1981 are unpublished and are available in files of New Jersey District Office.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 15.14 ft below land-surface datum, Feb. 15, 1973; lowest, 23.53 ft below land-surface datum, between Sept. 26, and Dec. 11, 1985.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

WATER-LEVEL EXTREMES			MEASURED WATER LEVEL	
PERIOD	HIGHEST WATER LEVEL	LOWEST WATER LEVEL	DATE	WATER LEVEL
SEPT. 22, 1988 TO DEC. 29, 1988	21.71	22.43	DEC. 29, 1988	22.43
DEC. 29, 1988 TO FEB. 27, 1989	22.42	22.52	FEB. 27, 1989	22.43
FEB. 27, 1989 TO MAY 30, 1989	19.40	22.43	MAY 30, 1989	19.40
MAY 30, 1989 TO SEPT. 22, 1989	18.46	19.40	SEPT. 22, 1989	18.46

NJ-WRD WELL NO. 05-0684



CAMDEN COUNTY

394215074561701. Local I.D., New Brooklyn Park 1 Obs. NJ-WRD Well Number, 07-0476.

LOCATION.--Lat 39°42'15", long 74°56'17", Hydrologic Unit 02040302, on eastern shore of New Brooklyn Lake about 900 ft upstream of Route 536, Winslow Township.

Owner: U.S. Geological Survey.

AQUIFER.--Potomac-Raritan-Magothy aquifer system, undifferentiated, of Cretaceous age.

WELL CHARACTERISTICS.--Drilled artesian observation well, diameter 4 in, depth 1,495 ft, screened 1,485 to 1,495 ft.

INSTRUMENTATION.--Digital water-level recorder--60-minute punch. Water-level extremes recorder, February 1977 to December 1984.

DATUM.--Land-surface datum is 111.13 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top of coupling, 1.75 ft above land-surface datum.

PERIOD OF RECORD.--February 1963 to August 1975, February 1977 to current year. Records for 1963 to 1981 are unpublished and are available in files of New Jersey District Office.

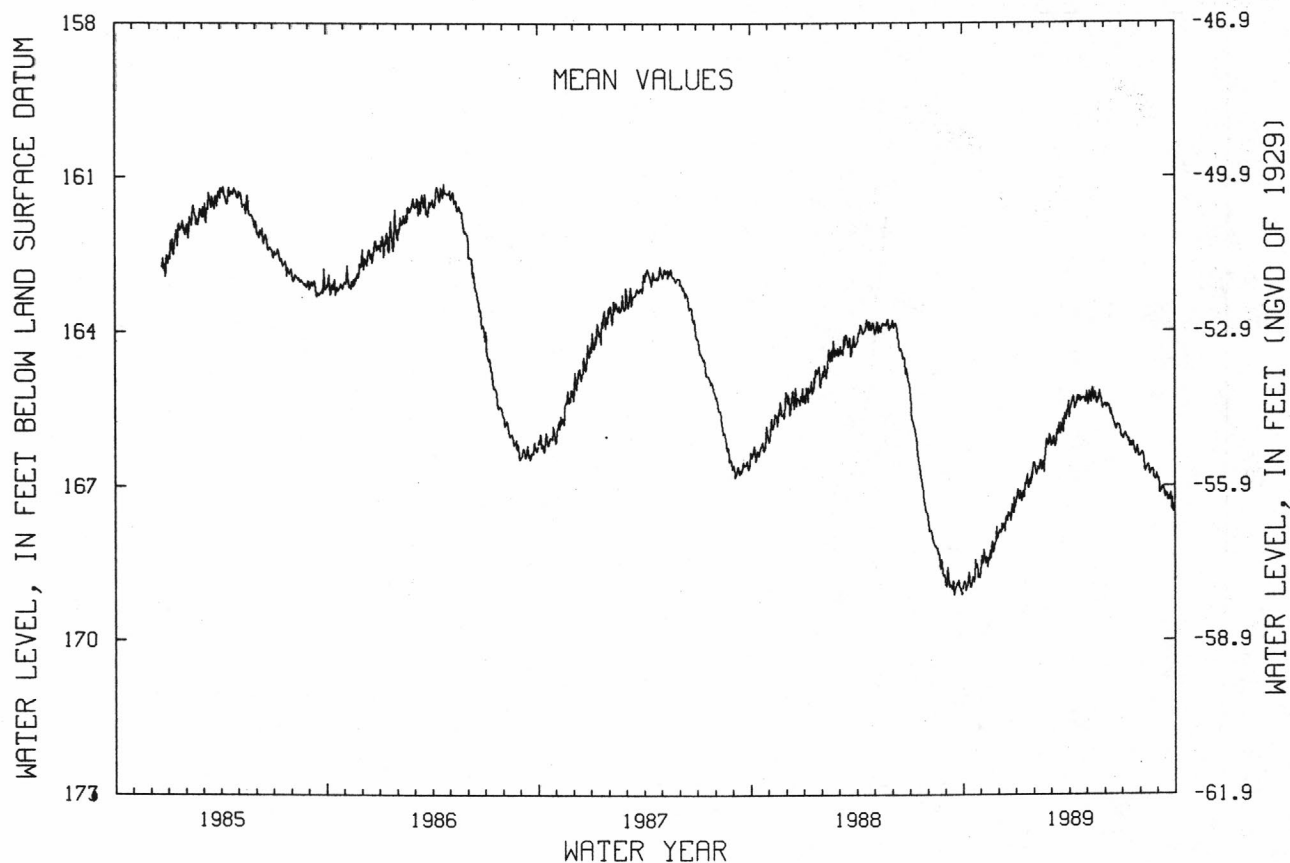
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 120.16 ft below land-surface datum, March 6, 1963; lowest, 169.15 ft below land-surface datum, Sept. 16, 1988.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	168.93	168.24	167.90	167.25	166.72	166.05	165.45	165.36	165.47	166.03	166.34	167.14
10	168.79	168.37	167.73	167.29	166.61	166.11	165.44	165.17	165.43	166.03	166.71	167.01
15	168.92	168.44	167.57	166.95	166.51	165.77	165.32	165.28	165.65	166.22	166.62	167.14
20	168.88	168.08	167.56	166.76	166.40	165.92	165.36	165.32	165.86	166.13	166.70	167.20
25	168.56	168.12	167.34	166.96	166.17	165.59	165.30	165.27	165.83	166.38	166.82	167.46
EOM	168.80	167.96	167.29	166.57	166.09	165.35	165.36	165.42	166.04	166.42	166.86	167.44
MEAN	168.81	168.28	167.63	167.00	166.46	165.90	165.37	165.29	165.66	166.17	166.63	167.19
WTR YR 1989	MEAN 166.70 HIGH 165.04 MAY 11 LOW 169.07 OCT 6,7											

NJ-WRD WELL NO.07-0476



CAMDEN COUNTY

394215074561702. Local I.D., New Brooklyn Park 2 Obs. NJ-WRD Well Number, 07-0477.

LOCATION---Lat 39°42'15", long 74°56'17", Hydrologic Unit 02040302, on eastern shore of New Brooklyn Lake about 900 ft upstream of Route 536, Winslow Township.

Owner: U.S. Geological Survey.

AQUIFER---Upper aquifer, Potomac-Raritan-Magothy aquifer system of Cretaceous age.

WELL CHARACTERISTICS---Drilled artesian observation well, diameter 6 in, depth 839 ft, screened 829 to 839 ft.

INSTRUMENTATION---Digital water-level recorder--60-minute punch.

DATUM---Land-surface datum is 111.13 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top edge of recorder shelf, 3.30 ft above land-surface datum.

PERIOD OF RECORD---January 1963 to August 1975, March 1977 to current year. Records for 1963 to 1975 are unpublished and are available in files of New Jersey District Office.

EXTREMES FOR PERIOD OF RECORD---Highest water level, 131.54 ft below land-surface datum, Mar. 6, 1963; lowest, 196.20 ft below land-surface datum, Aug. 19, 20, 1988.

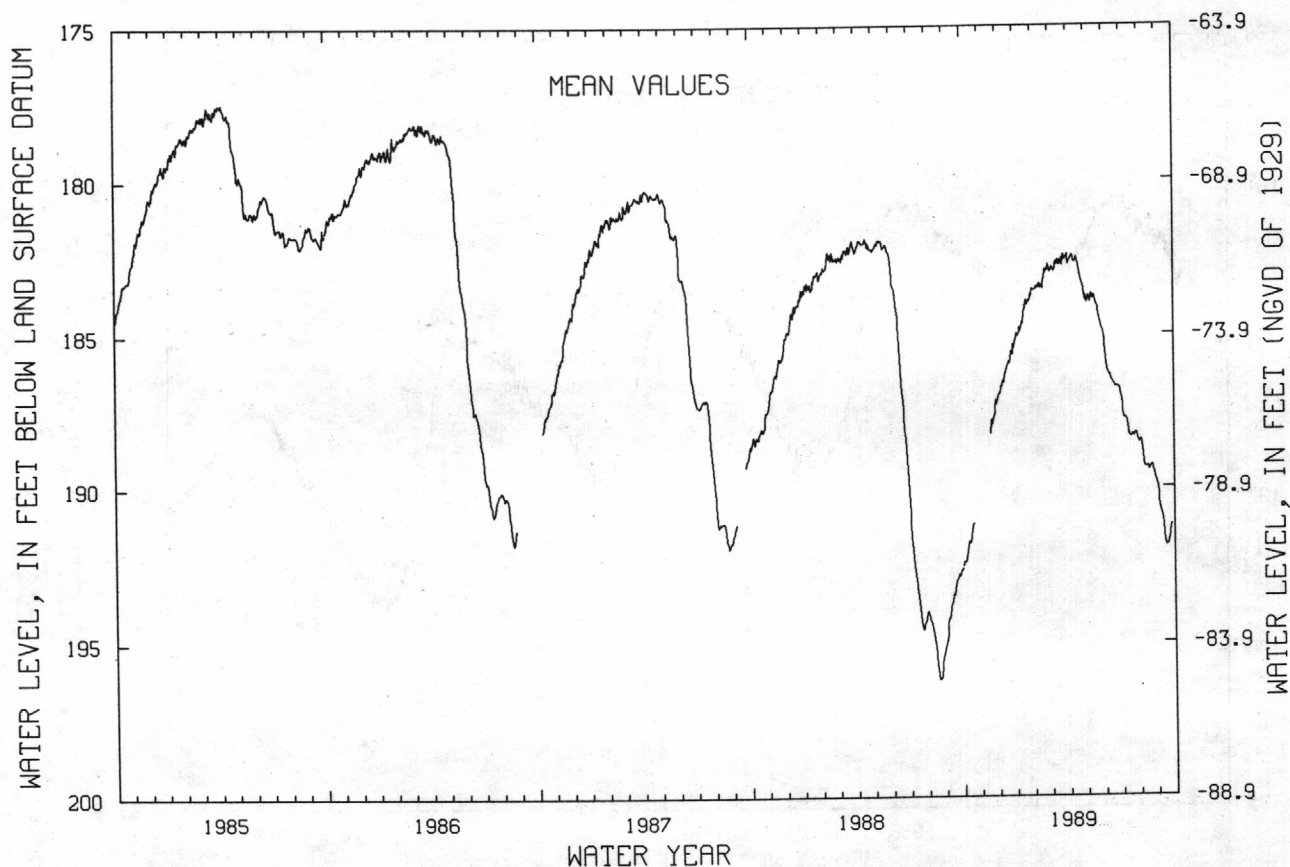
WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	192.39	---	186.90	185.06	183.54	182.84	182.63	183.97	185.81	187.67	188.47	190.60
10	191.87	---	186.55	184.88	183.48	182.87	182.60	183.80	186.23	187.80	189.33	191.01
15	191.60	---	186.24	184.31	183.41	182.60	182.60	183.84	186.52	188.32	189.39	191.83
20	191.15	187.87	185.95	183.89	183.19	182.74	182.94	183.99	186.68	188.30	189.37	191.72
25	---	187.66	185.54	183.96	182.94	182.44	183.34	184.50	186.70	188.26	189.44	191.20
EOM	---	187.21	185.27	183.56	182.88	182.41	183.83	184.93	186.99	188.53	189.90	---
MEAN	191.86	---	186.20	184.37	183.30	182.72	182.87	184.09	186.34	188.05	189.22	191.19

WTR YR 1989 MEAN 186.22 HIGH 182.33 MAR 31 LOW 192.56 OCT 1

NJ-WRD WELL NO.07-0477



CAMDEN COUNTY

394215074561703. Local I.D., New Brooklyn Park 3 Obs. NJ-WRD Well Number, 07-0478.

LOCATION.--Lat 39°42'15", long 74°56'17", Hydrologic Unit 02040302, on eastern shore of New Brooklyn Lake about 900 ft upstream of Route 536, Winslow Township.

Owner: U.S. Geological Survey.

AQUIFER.--Wenonah-Mount Laurel aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled artesian observation well, diameter 6 in, depth 530 ft, screened 520 to 530 ft.

INSTRUMENTATION.--Digital water-level recorder--60-minute punch.

DATUM.--Land-surface datum is 111.45 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top of 6 inch coupling, 2.10 ft above land-surface datum.

PERIOD OF RECORD.--December 1962 to August 1975, March 1977 to current year. Records for 1962 to 1975 are unpublished and are available in files of New Jersey District Office.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 58.53 ft below land-surface datum, Dec. 18, 1962; lowest, 93.26 ft below land-surface datum, Sept. 30, 1989.

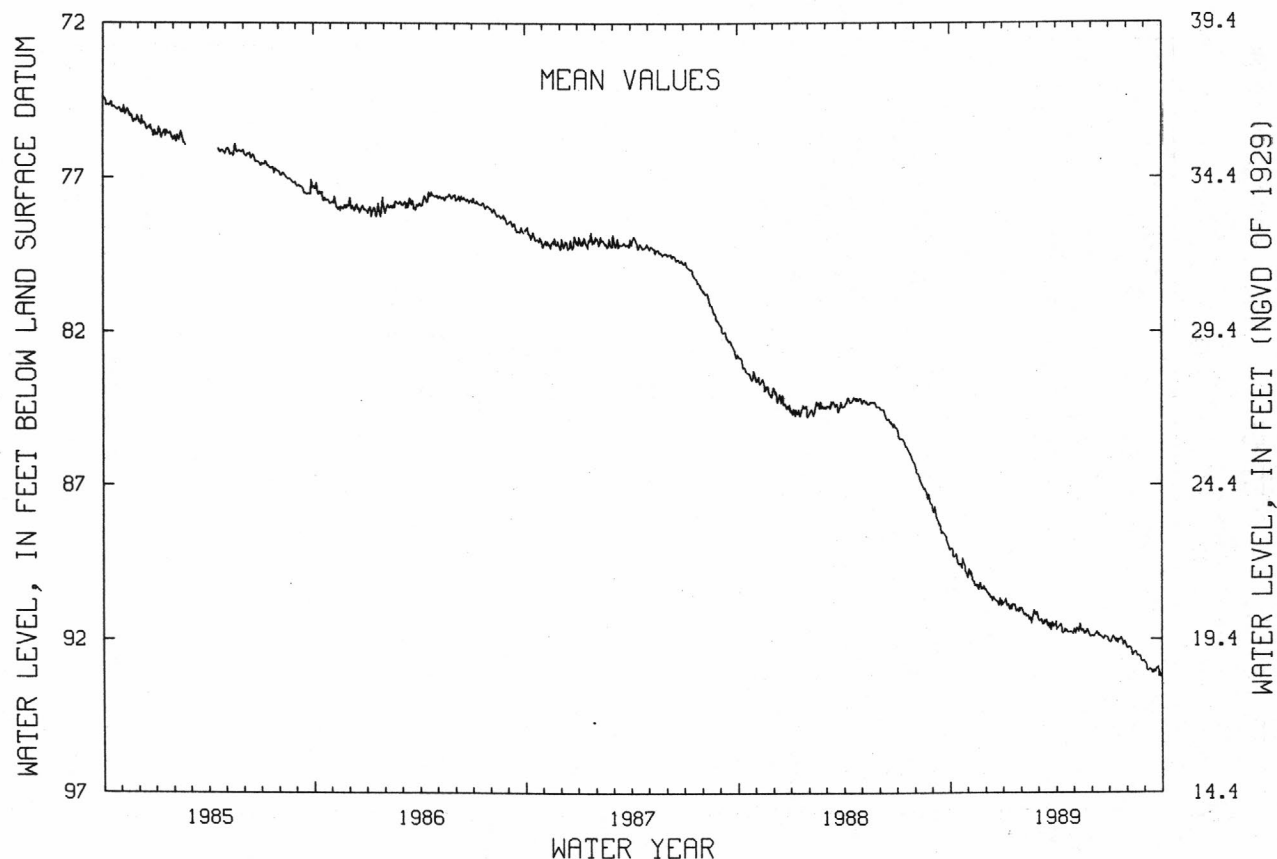
WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	89.12	89.79	90.55	90.82	91.20	91.35	91.61	91.80	91.92	92.07	92.24	93.03
10	89.27	90.09	90.61	90.95	91.26	91.48	91.67	91.67	91.74	91.99	92.53	92.95
15	89.52	90.27	90.62	90.86	91.28	91.35	91.74	91.72	91.90	92.07	92.43	93.03
20	89.63	90.27	90.78	90.85	91.31	91.62	91.77	91.80	91.98	92.01	92.53	92.93
25	89.57	90.32	90.65	91.08	91.20	91.43	91.77	91.71	91.91	92.18	92.66	93.21
EOM	89.97	90.39	90.82	90.95	91.24	91.42	91.82	91.89	92.07	92.27	92.74	93.21
MEAN	89.45	90.14	90.66	90.92	91.21	91.47	91.70	91.73	91.90	92.06	92.49	93.02

WTR YR 1989 MEAN 91.39 HIGH 88.99 OCT 2,3 LOW 93.26 SEP 30

NJ-WRD WELL NO.07-0478



CAMDEN COUNTY

394440074593101. Local I.D., Winslow WC 5 Obs. NJ-WRD Well Number, 07-0503.

LOCATION.--Lat 39°44'40", Long 74°59'31", Hydrologic Unit 02040302, about 1,000 ft east of intersection of Cross Keys-Berlin and Erial-Williamstown Roads, Winslow Township.

Owner: Winslow Water Company.

AQUIFER.--Kirkwood-Cohansey aquifer system of Miocene age.

WELL CHARACTERISTICS.--Drilled water-table observation well, diameter 6 in, depth 76 ft, screened 71 to 76 ft.

INSTRUMENTATION.--Digital water-level recorder--60-minute punch. Water-level extremes recorder, November 1977 to December 1984.

DATUM.--Land-surface datum is 173.26 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top edge of recorder shelf, 1.00 ft above land surface datum.

REMARKS.--Missing record from April 1 to April 26, 1989 was due to recorder malfunction.

PERIOD OF RECORD.--December 1972 to current year. Records for 1972 to 1980 are unpublished and are available in files of New Jersey District Office.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 26.78 ft below land-surface datum, May 20-21, 1973; lowest, 38.35 ft below land-surface datum, between June 3 and Oct. 6, 1981.

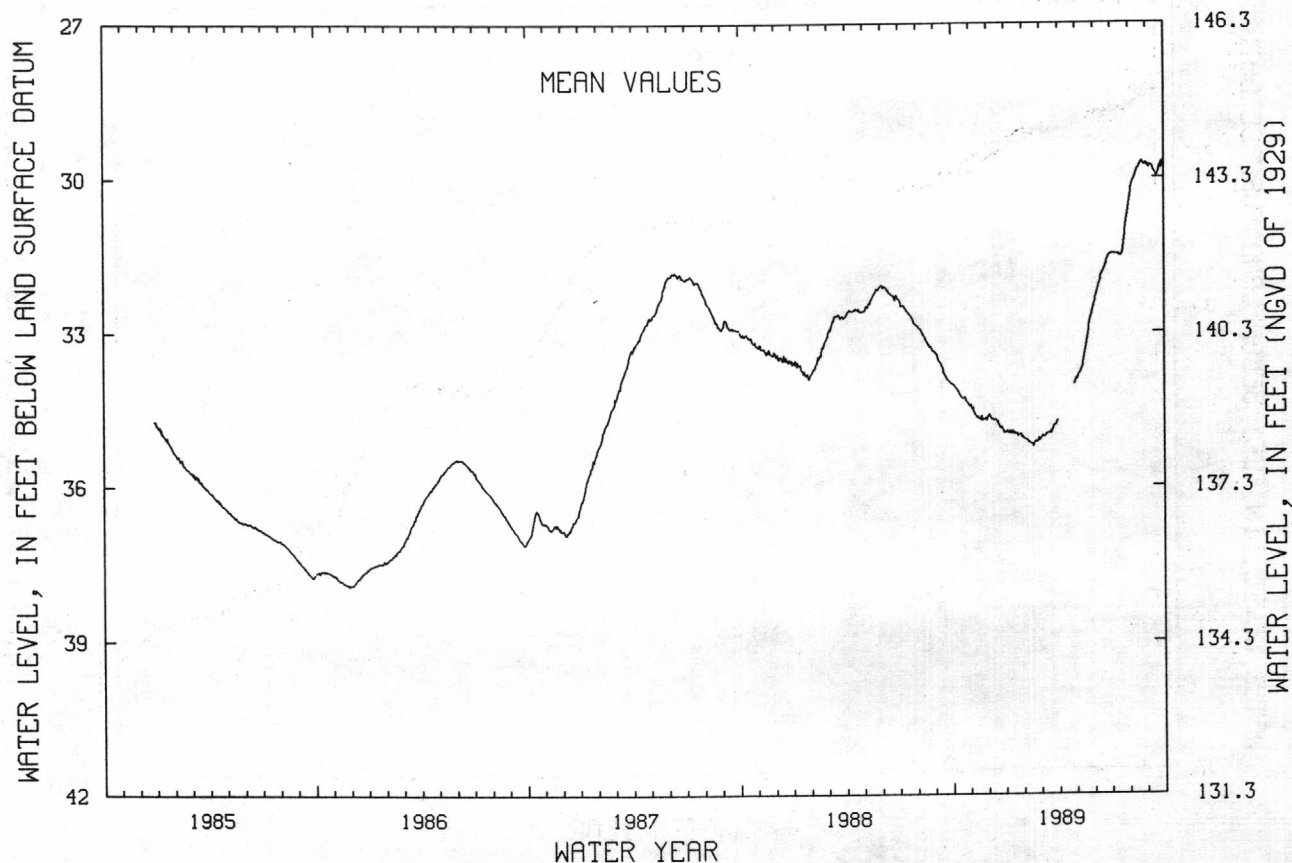
WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	34.08	34.48	34.65	34.96	35.10	35.01	---	33.85	32.26	31.48	30.18	29.78
10	34.12	34.60	34.71	34.98	35.15	35.01	---	33.71	32.06	31.47	30.01	29.80
15	34.26	34.69	34.74	34.95	35.19	34.97	---	33.47	31.88	31.53	29.84	29.91
20	34.33	34.64	34.81	34.98	35.16	34.92	---	33.11	31.73	31.47	29.74	29.91
25	34.36	34.71	34.90	35.04	35.12	34.84	---	32.78	31.57	31.02	29.73	29.77
EOM	34.45	34.66	34.96	35.07	35.10	34.73	33.97	32.48	31.50	30.52	29.77	29.71
MEAN	34.24	34.63	34.78	34.99	35.14	34.95	---	33.32	31.89	31.29	29.92	29.82

WTR YR 1989 MEAN 33.18 HIGH 29.65 SEP 26,29 LOW 35.25 FEB 16

NJ-WRD WELL NO.07-0503



CUMBERLAND COUNTY

392512074521206. Local I.D., Ragovin 2100 Obs. NJ-WRD Well Number 11-0137.

LOCATION.--Lat 39°25'14", long 74°52'17", Hydrologic Unit 02040302, in wooded area off Harriet Avenue, 1.5 mi southeast of Milmay, Maurice River Township.

Owner: Sam DeRosa.

AQUIFER.--Potomac-Raritan-Magothy aquifer system, undifferentiated, of Cretaceous age.

WELL CHARACTERISTICS.--Drilled artesian observation well, diameter 5 in, depth 2,093 ft, perforated casing 2083 to 2,093 ft.

INSTRUMENTATION.--Digital water-level recorder--60-minute punch.

DATUM.--Land-surface datum is 85 ft above National Geodetic Vertical Datum of 1929, by altimeter.

Measuring point: Top edge of recorder shelf, 2.40 ft above land-surface datum.

REMARKS.--This well is perforated in a saline zone of the aquifer system (Luzier, 1980,p. 8-12). An equivalent freshwater head is obtained by multiplying the column of water in the well by the ratio of density of water in the well to the density of freshwater. In 1974, the density of water was 1.011 grams per milliliter at 20 deg. C and a plus 17 foot correction was needed to obtain the equivalent freshwater head. Well was pumped on February 3, 1988. After pumping, the water-level did not recover to its previous level. The perforated area may have been partially clogged.

PERIOD OF RECORD.--October 1974 to April 1975, February 1977 to current year. Records for 1974 to 1977 are unpublished and are available in files of New Jersey District Office.

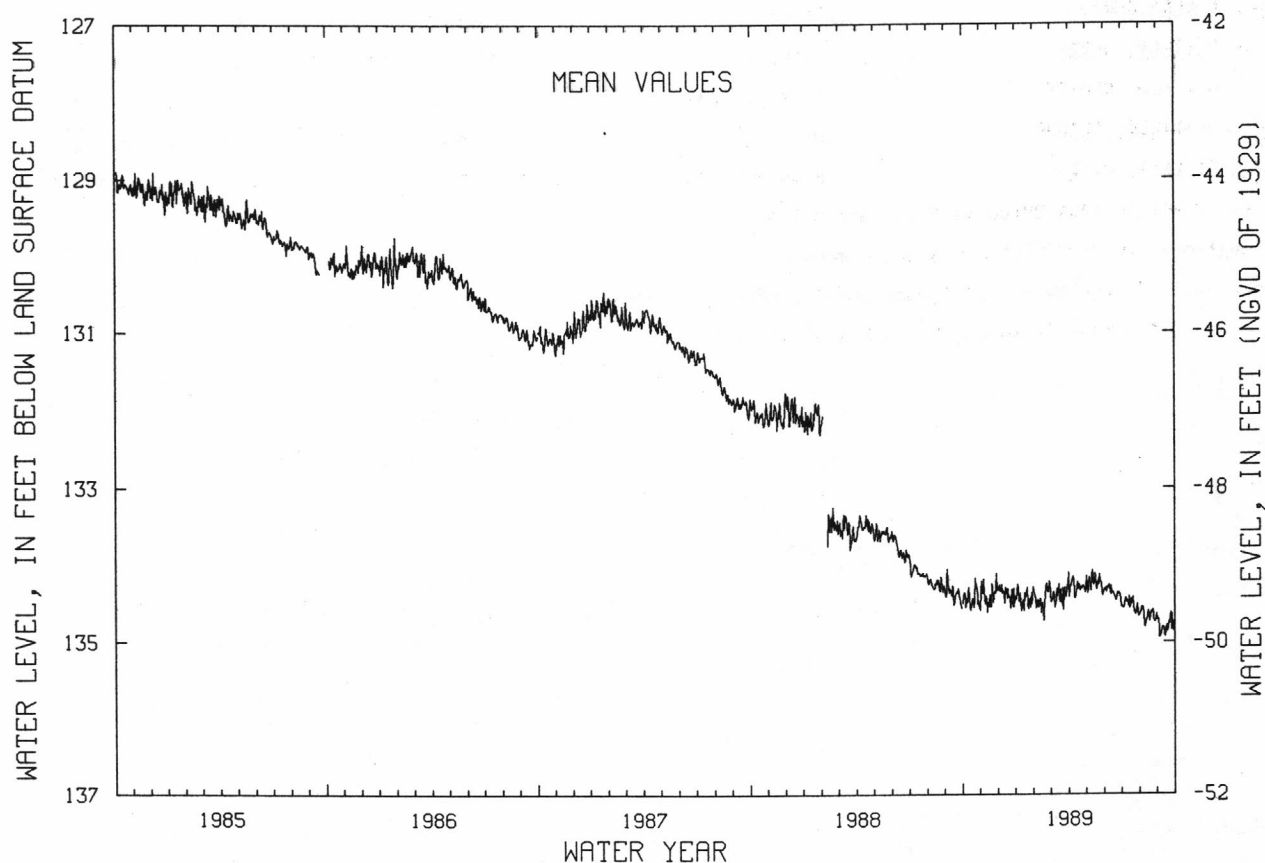
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 115.82 ft below land-surface datum, Apr. 3, 1975; lowest, 134.97 ft below land-surface datum, Sept. 5, 1989.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	134.44	134.18	134.36	134.47	134.53	134.38	134.27	134.31	134.35	134.55	134.54	134.95
10	134.37	134.40	134.33	134.59	134.52	134.47	134.35	134.14	134.25	134.46	134.81	134.80
15	134.53	134.54	134.31	134.36	134.49	134.25	134.30	134.23	134.37	134.56	134.66	134.82
20	134.55	134.24	134.43	134.29	134.49	134.50	134.33	134.25	134.45	134.42	134.63	134.74
25	134.32	134.37	134.34	134.55	134.35	134.29	134.29	134.22	134.38	134.65	134.71	134.85
EOM	134.58	134.30	134.41	134.33	134.34	134.10	134.30	134.33	134.54	134.65	134.72	134.79
MEAN	134.45	134.38	134.38	134.43	134.45	134.39	134.30	134.24	134.36	134.53	134.66	134.81
WTR YR 1989	MEAN 134.45 HIGH 133.99 MAR 31 LOW 134.97 SEP 5											

NJ-WRD WELL NO.11-0137



GROUND-WATER LEVELS
GLOUCESTER COUNTY

NJ-WRD WELL NUMBER	SITE OWNER	LOCAL IDENTIFIER	LATITUDE	LONGITUDE	DEPTH OF WELL (FT.)	ELEV.** OF LAND SURFACE DATUM (FT. NGVD)	DATE OF MEASUREMENT	WATER LEVEL (FT.)*
15-039	CIFALOGGIO, S	1	393148	745822	123	110	11/18/1988	10.80
15-198	LESHAY BROS	1965 WELL	393944	745934	141	130	5/ 2/1989	6.64
15-568	RALPH SMITH FARM	1	394305	750307	97	140	11/17/1988	11.21
15-726	SMITH, JOHN	AURA ORCHARDS	394130	750921	62	140	5/ 3/1989	8.17
15-734	DASE, DENNIS	DASE 1	393523	745912	110	138	11/17/1988	21.12
15-745	FRANKLIN TWP SANITARY LANDFILL	DUMP NORTH	393608	750257	35	124	5/ 3/1989	***
15-754	DEAN, GEORGE	DEAN 1	393934	751033	58	143	11/18/1988	14.33
15-759	MESIANO, JIM	MESIANO 1	394232	750126	135	159	5/ 2/1989	9.37
15-760	WILLIAMS, RONALD	RW 1	394020	745611	30	115	11/18/1988	20.90
15-761	LUCAS, HARRY	LUCAS IRR 1	394142	745818	38	130	5/ 2/1989	19.32
15-763	MOORE, EAYRE	MOORE 2	393525	750521	60	109	11/29/1988	25.79
15-764	SCAFONIS, FELIX	SCAFONIS D	393708	750143	49	130	5/11/1989	22.61
15-792	THE PLANT PLACE INC	PP 1	393928	750434	75	110	11/18/1988	15.92
15-793	FERRUCCI, MARY	FERRUCCI 10	393448	745606	150	110	5/ 2/1989	9.54
15-795	SMITH, FRED	FRED SMITH-1965	394140	750312	100	150	11/17/1988	39.49
15-796	SMITH, FRED	SMITH 5	394238	750308	90	160	5/ 3/1989	38.77
15-801	CHILLARI, JOE	CHILLARI 1	394227	750522	85	144	11/17/1988	17.72
15-804	FRANKLIN TWP BOARD OF EDUCATION	MALAGA 1	393428	750244	100	110	5/ 3/1989	14.12
15-808	GLASSBORO WATER DEPT	GLASS OBS 1	394319	750725	60	122	11/17/1988	14.27
15-810	ELK TWP MUA	ELK 1	394021	750827	63	144	5/ 3/1989	11.35
15-811	SHOEMAKER, G	SHOEMAKER 1	394055	751412	32	140	11/18/1988	21.35
15-812	CORONA PUMPS	CORONA 1	393805	745554	100	123	5/ 2/1989	18.89
15-840	DEVAULT, HARRY	DEVAULT 1	393744	750735	34	110	11/17/1988	21.82
15-846	U S GEOL SURVEY	CARPENTER 126	394053	750453	10	126	5/ 2/1989	19.20
15-1016	DUFFIELD, CLAUDE	DUFFIELD 2	393633	750630	60	129	11/17/1988	13.19
15-1037	DILLNER, PETER	FRIMAIR IRR	394303	750303	77	150	5/ 3/1989	10.42

* - Water level in feet below land surface datum

** - Elevations are from USGS topographic maps

*** - Well covered over by new construction- replaced in network by 15-1037 (FRIMAIR IRR)

Aquifer unit: 121CKKD - Kirkwood-Cohansey aquifer system

MIDDLESEX COUNTY

402015074275701. Local I.D., Forsgate 3 Obs. NJ-WRD Well Number, 23-0228.

LOCATION---Lat 40°20'15", long 74°27'57", Hydrologic Unit 02030105, on Hanover Lane at Rossmoor, Monroe Township.

Owner: Monroe Township Municipal Utilities Authority.

AQUIFER---Old Bridge aquifer, Potomac-Raritan-Magothy aquifer system of Cretaceous age.

WELL CHARACTERISTICS---Drilled artesian observation well, diameter 6 in, depth 138 ft, screened 128 to 138 ft.

INSTRUMENTATION---Water-level extremes recorder, January 1977 to current year. Water-level recorder, October 1961 to August 1967, August 1968 to August 1975.

DATUM---Land-surface datum is 147.34 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Front edge of cutout in recorder housing, 1.40 ft below land-surface datum.

REMARKS---Water level affected by nearby pumping.

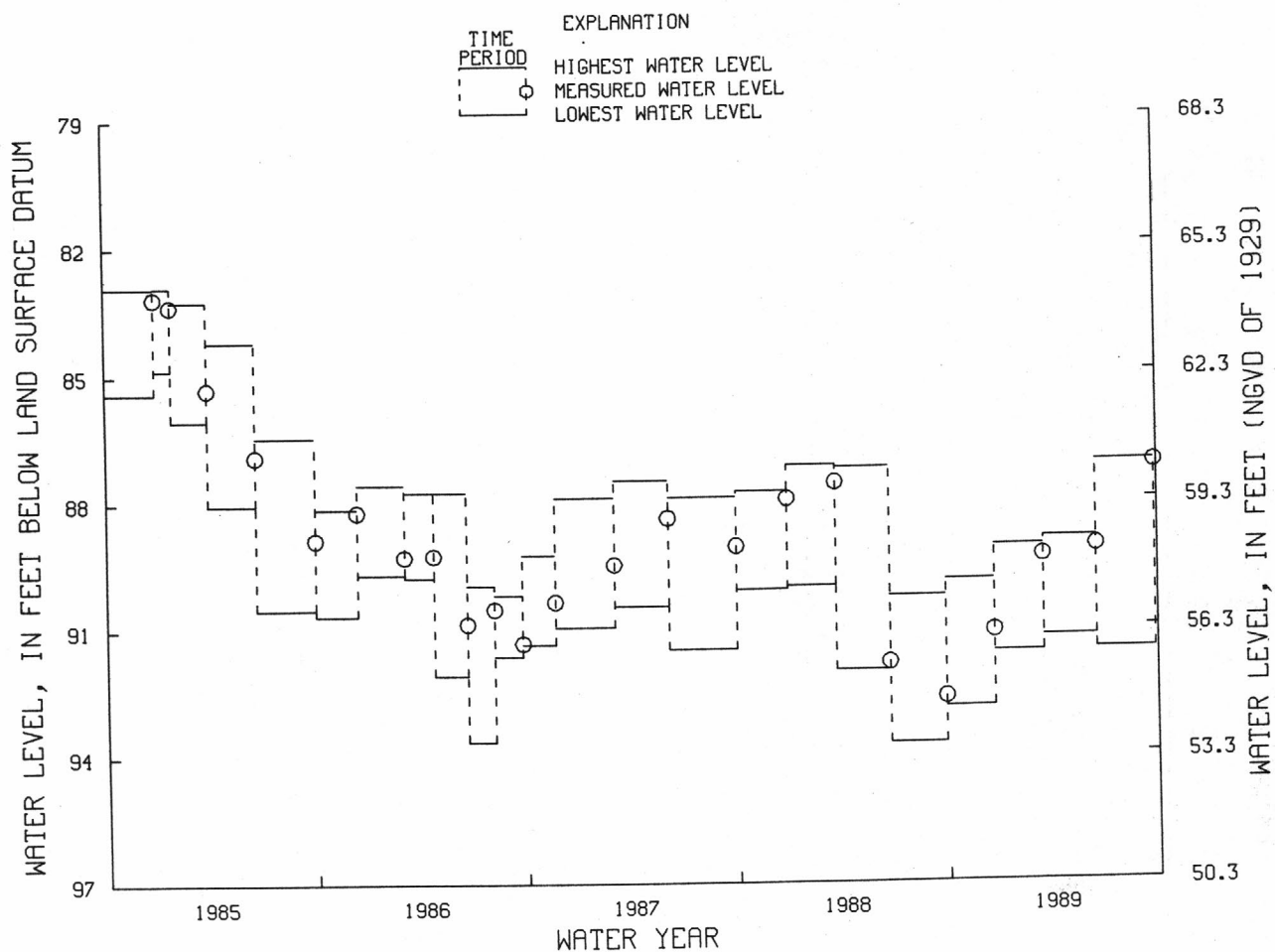
PERIOD OF RECORD---October 1961 to August 1967, August 1968 to August 1975, January 1977 to current year. Records for 1961 to 1975 are unpublished and are available in files of New Jersey District Office.

EXTREMES FOR PERIOD OF RECORD---Highest water level, 70.32 ft below land-surface datum, May 6, 1962; lowest, 93.72 ft below land-surface datum, between June 22 and Sept. 28, 1988.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

WATER-LEVEL EXTREMES			MEASURED WATER LEVEL	
PERIOD	HIGHEST WATER LEVEL	LOWEST WATER LEVEL	DATE	WATER LEVEL
SEPT. 28, 1988 TO DEC. 21, 1988	89.86	92.86	DEC. 21, 1988	91.08
DEC. 21, 1988 TO MAR. 15, 1989	89.07	91.57	MAR. 15, 1989	89.31
MAR. 15, 1989 TO JUNE 16, 1989	88.89	91.21	JUNE 16, 1989	89.09
JUNE 16, 1989 TO SEPT. 26, 1989	87.12	91.53	SEPT. 26, 1989	87.16

NJ-WRD WELL NO. 23-0228



MIDDLESEX COUNTY

402015074275702. Local I.D., Forsgate 4 Obs. NJ-WRD Well Number, 23-0229.

LOCATION.--Lat 40°20'15", long 74°27'57", Hydrologic Unit 02030105, on Hanover Lane at Rossmoor, Monroe Township.

Owner: Monroe Township Municipal Utilities Authority.

AQUIFER.--Farrington aquifer, Potomac-Raritan-Magothy aquifer system of Cretaceous age.

WELL CHARACTERISTICS.--Drilled artesian observation well, diameter 6 in, depth 330 ft screened 319 to 330 ft.

INSTRUMENTATION.--Water-level extremes recorder, January 1977 to current year. Water-level recorder, April 1965 to August 1967, August 1968 to August 1975.

DATUM.--Land-surface datum is 147.34 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Front edge of cutout in recorder housing, 1.50 ft below land-surface datum.

REMARKS.--Water level affected by nearby pumping.

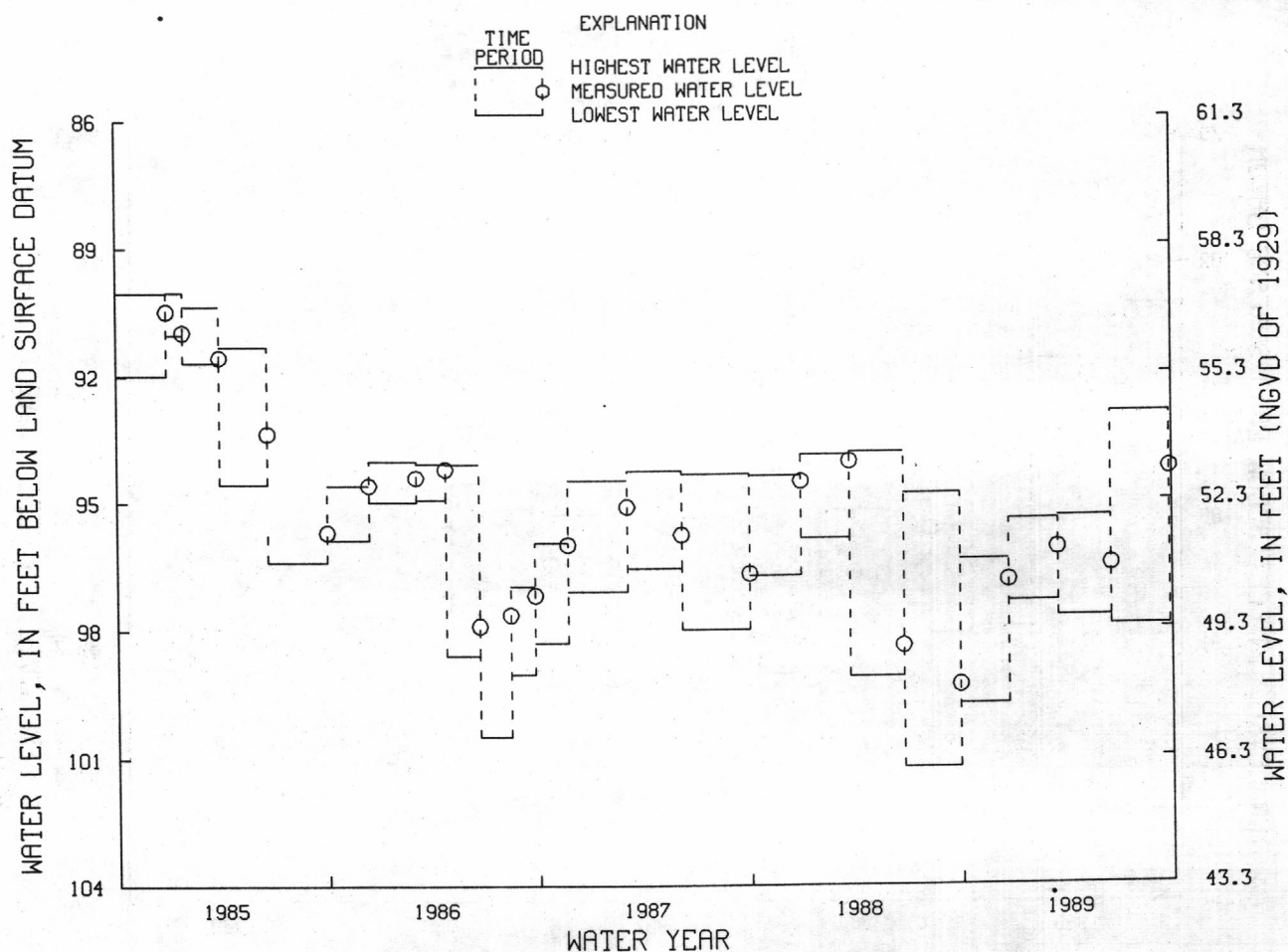
PERIOD OF RECORD.--April 1965 to August 1967, August 1968 to August 1975, January 1977 to current year. Records for 1965 to 1975 are unpublished and are available in files of New Jersey District Office.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 80.09 ft below land-surface datum, July 16, 1973; lowest, 101.23 ft below land-surface datum, between June 22 and Sept. 28, 1988.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

WATER-LEVEL EXTREMES			MEASURED WATER LEVEL	
PERIOD	HIGHEST WATER LEVEL	LOWEST WATER LEVEL	DATE	WATER LEVEL
SEPT. 28, 1988 TO DEC. 21, 1988	96.37	99.74	DEC. 21, 1988	96.86
DEC. 21, 1988 TO MAR. 15, 1989	95.44	97.36	MAR. 15, 1989	96.11
MAR. 15, 1989 TO JUNE 16, 1989	95.38	97.71	JUNE 16, 1989	96.50
JUNE 16, 1989 TO SEPT. 26, 1989	92.92	97.93	SEPT. 26, 1989	94.24

NJ-WRD WELL NO. 23-0229



MIDDLESEX COUNTY

402143074185201. Local I.D., Morrell 1 Obs. NJ-WRD Well Number 23-0104.

LOCATION.--Lat 40°21'43", long 74°18'49", Hydrologic Unit 02030105, on the north side of Texas Road, about .4 mi. east of Route 9, Old Bridge Township

OWNER: Olympia and York Bridge Development Corp.

AQUIFER.--Englishtown aquifer system of Cretaceous age.

WELL CHARACTERISTICS.--Dug water-table observation well, diameter 17 in, depth 11 ft, cased with precast concrete rings.

INSTRUMENTATION.--Digital water-level recorder--60-minute punch.

DATUM.--Land-surface datum is 76.75 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top inside edge of concrete ring, .20 ft above land-surface datum.

REMARKS.--Well depth was 6 ft before deepening in September 1932.

PERIOD OF RECORD.--October 1923 to July 1975, January 1985 to current year. Periodic manual measurements August 1975

to December 1984. Records for 1973 to 1985 are unpublished and are available in files of New Jersey District Office.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 0.97 ft below land-surface datum, September 19, 1989; lowest, 10.40 ft below land surface datum, October 13, 1953. Well was dry, August to September 1932, before deepening.

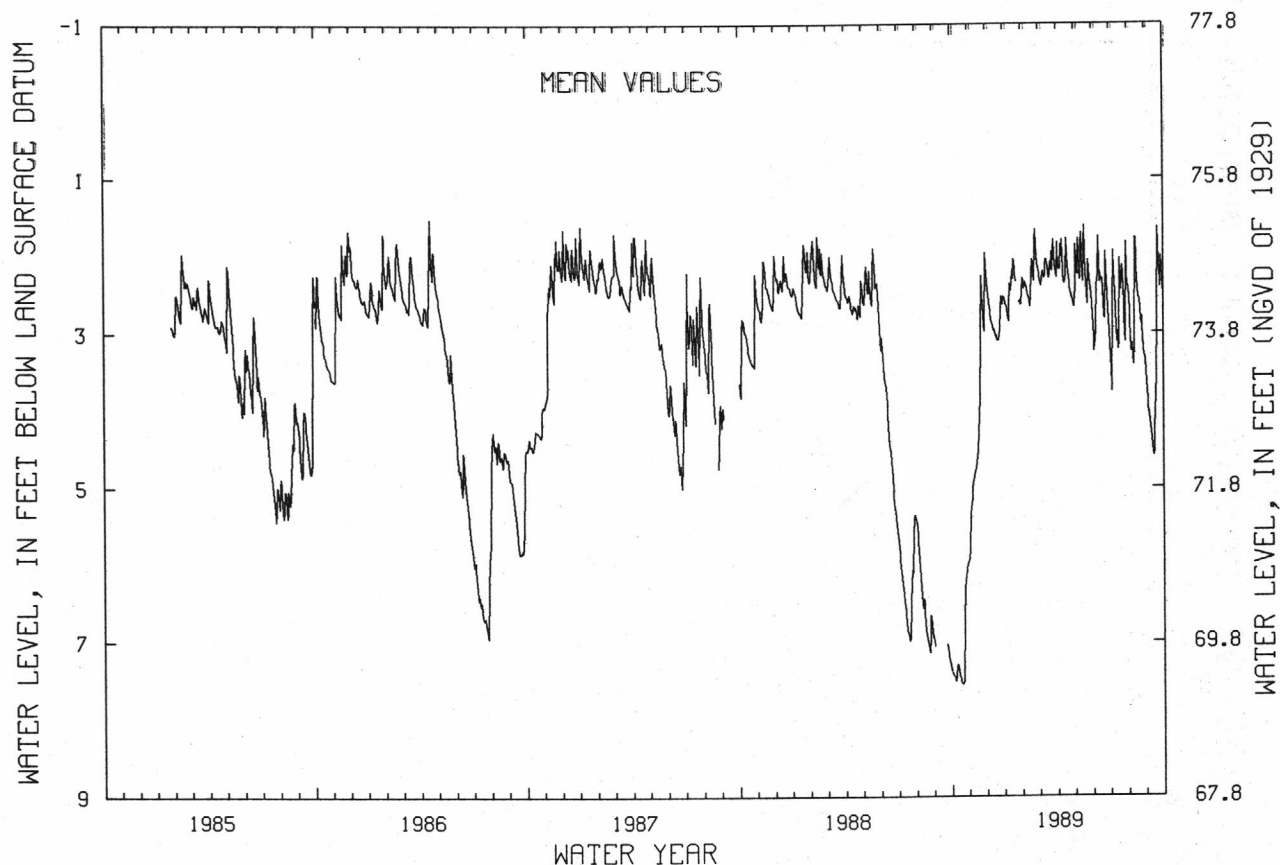
WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	7.46	5.14	2.68	2.78	2.38	2.40	2.18	2.25	3.13	2.68	3.07	4.01
10	7.29	4.80	2.88	2.41	2.53	2.27	2.18	1.88	1.76	2.71	3.41	4.37
15	7.48	4.53	3.01	2.05	2.27	2.14	2.27	2.34	2.31	3.21	2.20	4.19
20	7.56	3.02	3.10	2.34	2.33	2.19	2.30	2.37	2.79	2.31	2.58	1.64
25	6.14	2.89	2.53	2.61	2.12	1.80	2.53	2.08	2.35	2.80	2.93	2.42
EOM	5.93	2.25	2.57	2.29	2.24	1.83	2.50	2.78	3.16	2.40	3.52	2.52
MEAN	7.03	3.99	2.79	2.48	2.28	2.17	2.26	2.20	2.55	2.69	2.81	3.36

WTR YR 1989 MEAN 3.07 HIGH 0.97 SEP 19 LOW 7.56 OCT 20,21

NJ-WRD WELL NO.23-0104



MIDDLESEX COUNTY

402553074271701. Local I.D., Robert Fischer Obs. NJ-WRD Well Number, 23-0070.

LOCATION---Lat 40°25'55", long 74°27'19", Hydrologic Unit 02030105, about 1,800 ft southeast of Weber School on Hardenburg Lane, East Brunswick Township.

Owner: Robert D. Fischer.

AQUIFER---Farrington aquifer, Potomac-Raritan-Magothy aquifer system of Cretaceous age.

WELL CHARACTERISTICS---Dug water-table observation well, diameter 4.5 ft, depth 21 ft, lined with concrete blocks.

INSTRUMENTATION---Digital water-level recorder--60-minute punch. Water-level extremes recorder, January 1977 to April 1985.

DATUM---Land-surface datum is 73.00 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top of angle iron at bottom of shelter doors, 1.70 ft above land-surface datum.

REMARKS---Well deepened October 29, 1965 from 17 to 21 ft.

PERIOD OF RECORD---June 1936 to April 1975, January 1977 to current year.

EXTREMES FOR PERIOD OF RECORD---Highest water level, 8.88 ft below land-surface datum, Apr. 26-27, 1939; lowest, 19.11 ft below land-surface datum, between July 24 and Oct. 6, 1981; well was dry many times, 1963-1965 before deepening.

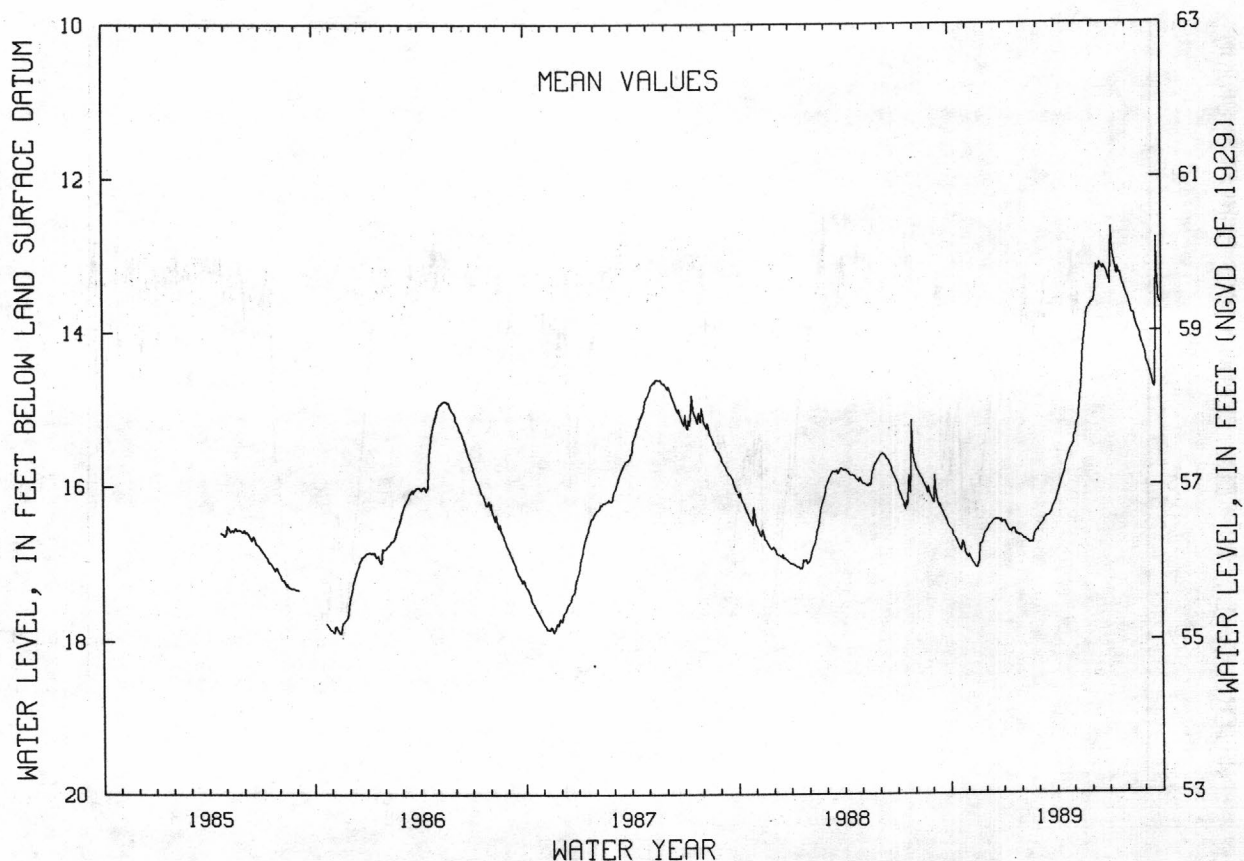
WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	16.60	16.95	16.56	16.52	16.69	16.51	16.08	15.33	13.62	13.01	13.60	14.41
10	16.68	17.01	16.50	16.58	16.71	16.47	15.94	15.12	13.14	13.05	13.76	14.53
15	16.77	17.07	16.45	16.57	16.74	16.40	15.83	14.74	13.19	13.23	13.82	14.67
20	16.84	16.97	16.45	16.57	16.74	16.38	15.67	14.06	13.18	13.25	13.96	13.88
25	16.81	16.75	16.45	16.64	16.60	16.30	15.56	13.75	13.18	13.37	14.08	13.57
EOM	16.93	16.61	16.47	16.65	16.58	16.20	15.49	13.64	13.30	13.51	14.25	13.67
MEAN	16.74	16.90	16.49	16.58	16.68	16.40	15.81	14.51	13.31	13.23	13.87	14.15

WTR YR 1989 MEAN 15.38 HIGH 12.37 JUL 5 LOW 17.08 NOV 15-17

NJ-WRD WELL NO.23-0070



MONMOUTH COUNTY

401105074120201. Local I.D., Howell Twp. 1 Obs. NJ-WRD Well Number, 25-0635.

LOCATION.--Lat 40°11'05", long 74°12'02", Hydrologic Unit 02040301, on the south side of Peskin Rd., about 5000 ft east of the intersection of Georgia Tavern and Peskin Roads, Howell Twp.

Owner: U.S. Geological Survey.

AQUIFER.--Potomac-Raritan-Magothy aquifer system, undifferentiated, of Cretaceous age.

WELL CHARACTERISTICS.--Drilled artesian observation well, diameter 4 in, depth 1360 ft, screened 1226 to 1240, 1280 to 1290 and 1320 to 1330 ft.

INSTRUMENTATION.--Digital water-level recorder--60-minute punch.

DATUM.--Land-surface datum is 111.3 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top edge of recorder shelf, 2.10 ft above land-surface datum.

PERIOD OF RECORD.--December 1987 to current year.

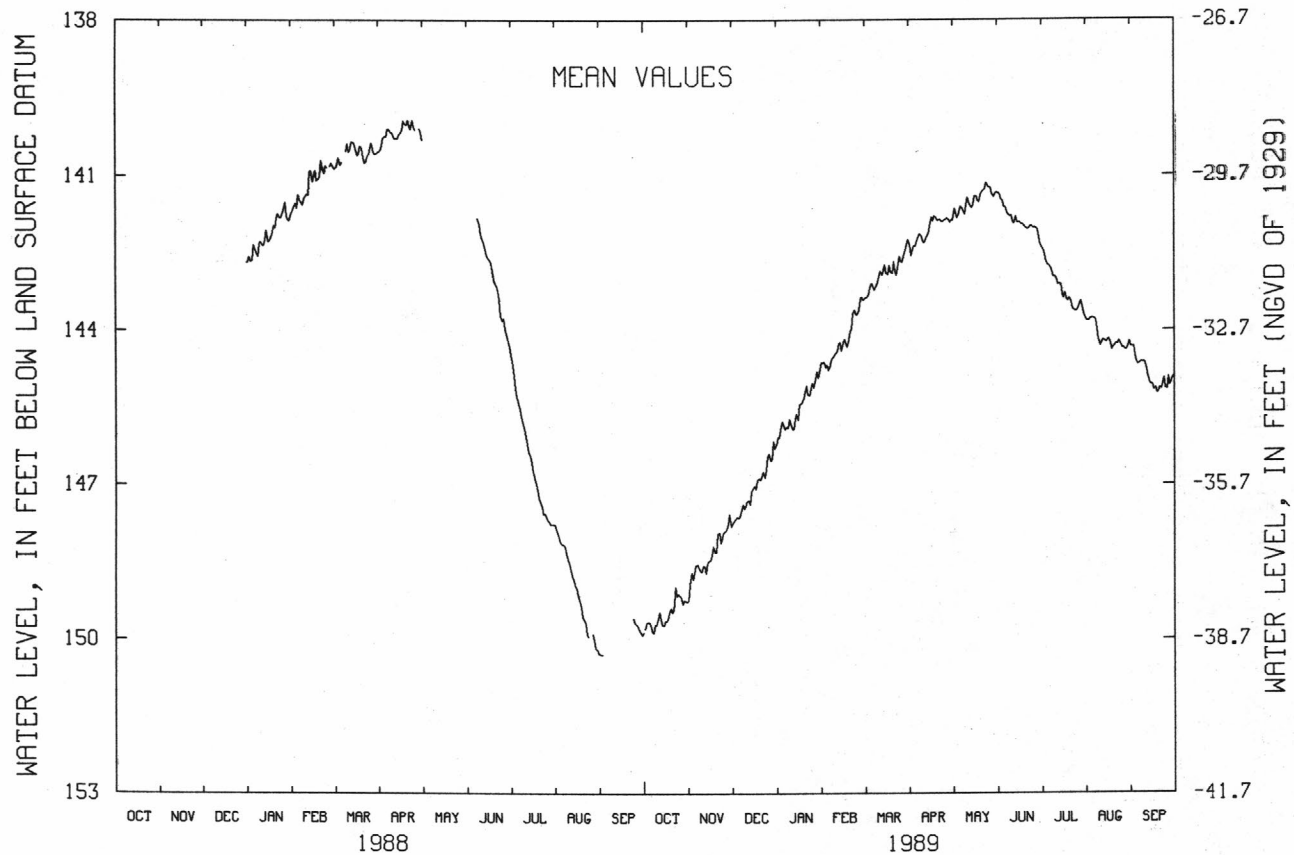
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 139.88 ft below land-surface datum, April 21, 1988; lowest, 150.32 ft below land-surface datum, Sept. 2, 1988.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	149.73	148.58	147.62	145.92	144.72	143.14	142.37	141.79	141.63	142.74	143.77	144.67
10	149.60	148.57	147.32	145.92	144.40	143.08	142.28	141.59	141.79	142.98	144.31	144.67
15	149.65	148.48	147.03	145.44	144.18	142.74	142.00	141.58	141.94	143.33	144.22	145.06
20	149.49	147.95	146.84	145.07	143.97	142.90	141.89	141.40	142.02	143.39	144.31	145.13
25	149.16	147.90	146.40	145.11	143.61	142.57	141.88	141.23	142.02	143.62	144.35	145.15
EOM	149.25	147.76	146.09	144.64	143.42	142.25	141.88	141.34	142.36	143.79	144.33	144.96
MEAN	149.50	148.32	147.00	145.42	144.16	142.90	142.07	141.50	141.87	143.21	144.16	144.89
WTR YR 1989	MEAN 144.59 HIGH 141.06 MAY 24 LOW 149.90 OCT 6,7											

NJ-WRD WELL NO.25-0635



MONMOUTH COUNTY

401105074120202. Local I.D., Howell Twp. 2 Obs. NJ-WRD Well Number, 25-0636.

LOCATION.--Lat 40°11'05", long 74°12'02", Hydrologic Unit 02040301, on the south side of Peskin Rd., about 5000 ft east of the intersection of Georgia Tavern and Peskin Roads, Howell Twp.

Owner: U.S. Geological Survey.

AQUIFER.--Vincetown Formation of Paleocene age.

WELL CHARACTERISTICS.--Drilled artesian observation well, diameter 4 in, depth 100 ft, screened 85 to 95 ft.

INSTRUMENTATION.--Digital water-level recorder--60-minute punch.

DATUM.--Land-surface datum is 111.9 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top edge of recorder shelf, 1.20 ft above land-surface datum.

REMARKS.--Water level affected by nearby pumping.

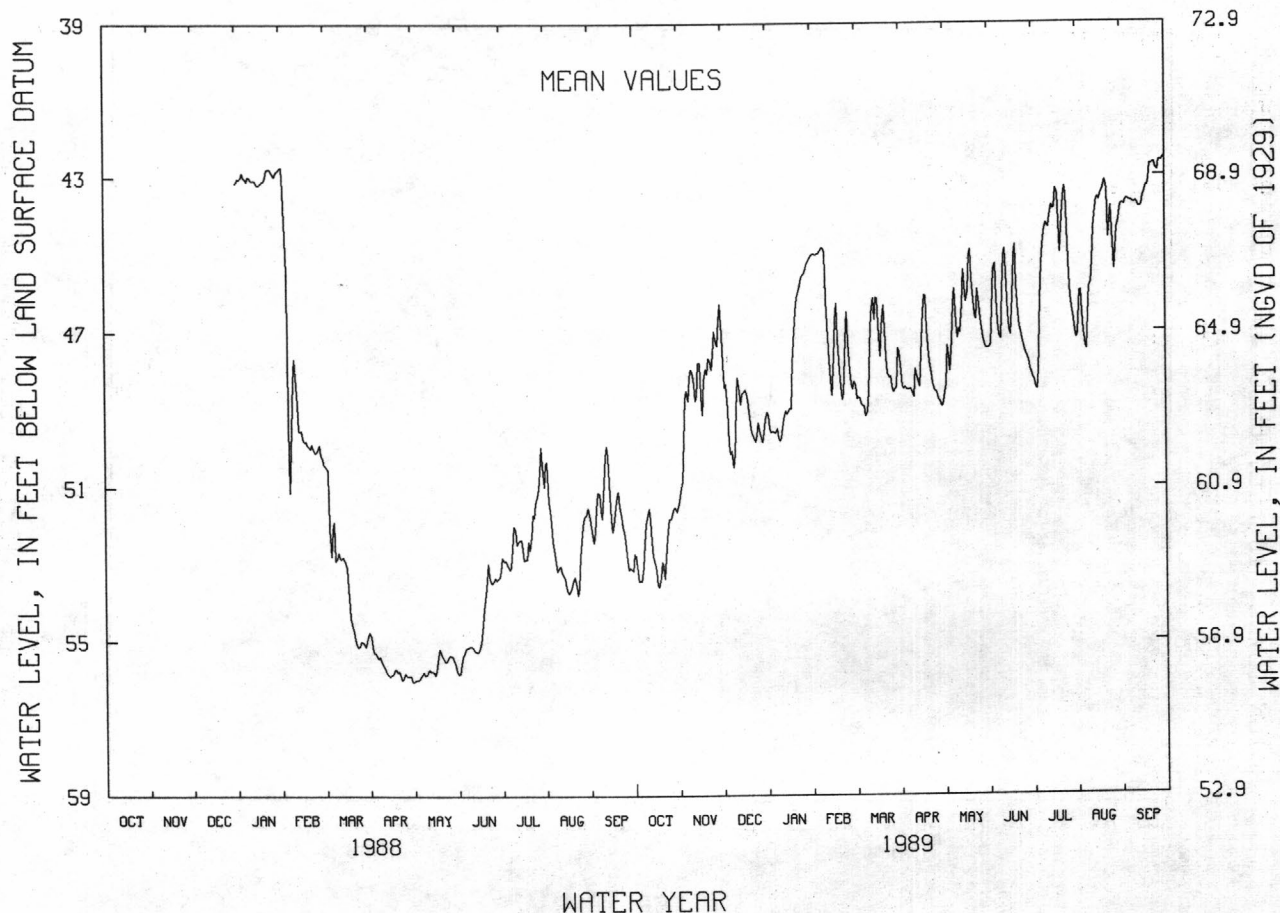
PERIOD OF RECORD.--December 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 42.52 ft below land-surface datum, Sept. 29, 1989; lowest, 56.09 ft below land-surface datum, April 29, 1988.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN VALUES											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	53.41	48.50	50.13	49.60	44.91	48.89	48.49	48.01	45.27	48.05	47.03	43.63
10	51.53	48.34	48.16	49.35	47.15	48.57	48.68	47.16	45.97	44.23	45.78	43.68
15	53.13	48.64	48.49	48.96	46.70	46.12	47.59	45.85	46.95	43.86	43.57	43.55
20	53.05	47.67	49.63	46.11	48.75	46.31	47.62	45.68	45.84	44.99	43.14	42.71
25	51.80	47.29	49.53	45.52	48.01	48.15	48.54	46.33	47.43	44.82	44.77	42.89
EOM	51.35	47.82	49.15	45.00	48.29	47.51	48.91	47.43	48.07	47.19	43.75	42.61
MEAN	52.48	48.18	49.25	47.64	46.90	47.83	48.12	46.70	46.59	45.32	44.86	43.28
WTR YR 1989	MEAN 47.27 HIGH 42.52 SEP 29 LOW 53.74 OCT 17											

NJ-WRD WELL NO.25-0636



MONMOUTH COUNTY

401105074120203. Local I.D., Howell Twp. 3 Obs. NJ-WRD Well Number, 25-0637.

LOCATION---Lat 40°11'05", Long 74°12'02", Hydrologic Unit 02040301, on the south side of Peskin Rd., about 5000 ft east of the intersection of Georgia Tavern and Peskin Roads, Howell Twp.

Owner: U.S. Geological Survey.

AQUIFER---Wenonah-Mount Laurel aquifer of Cretaceous age.

WELL CHARACTERISTICS---Drilled artesian observation well, diameter 4 in, depth 324 ft, screened 307 to 317 ft.

INSTRUMENTATION---Digital water-level recorder--60-minute punch.

DATUM---Land-surface datum is 111.9 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top edge of recorder shelf, 1.80 ft above land-surface datum.

REMARKS---Missing record from December 1-28 was due to recorder malfunction.

PERIOD OF RECORD---December 1987 to current year.

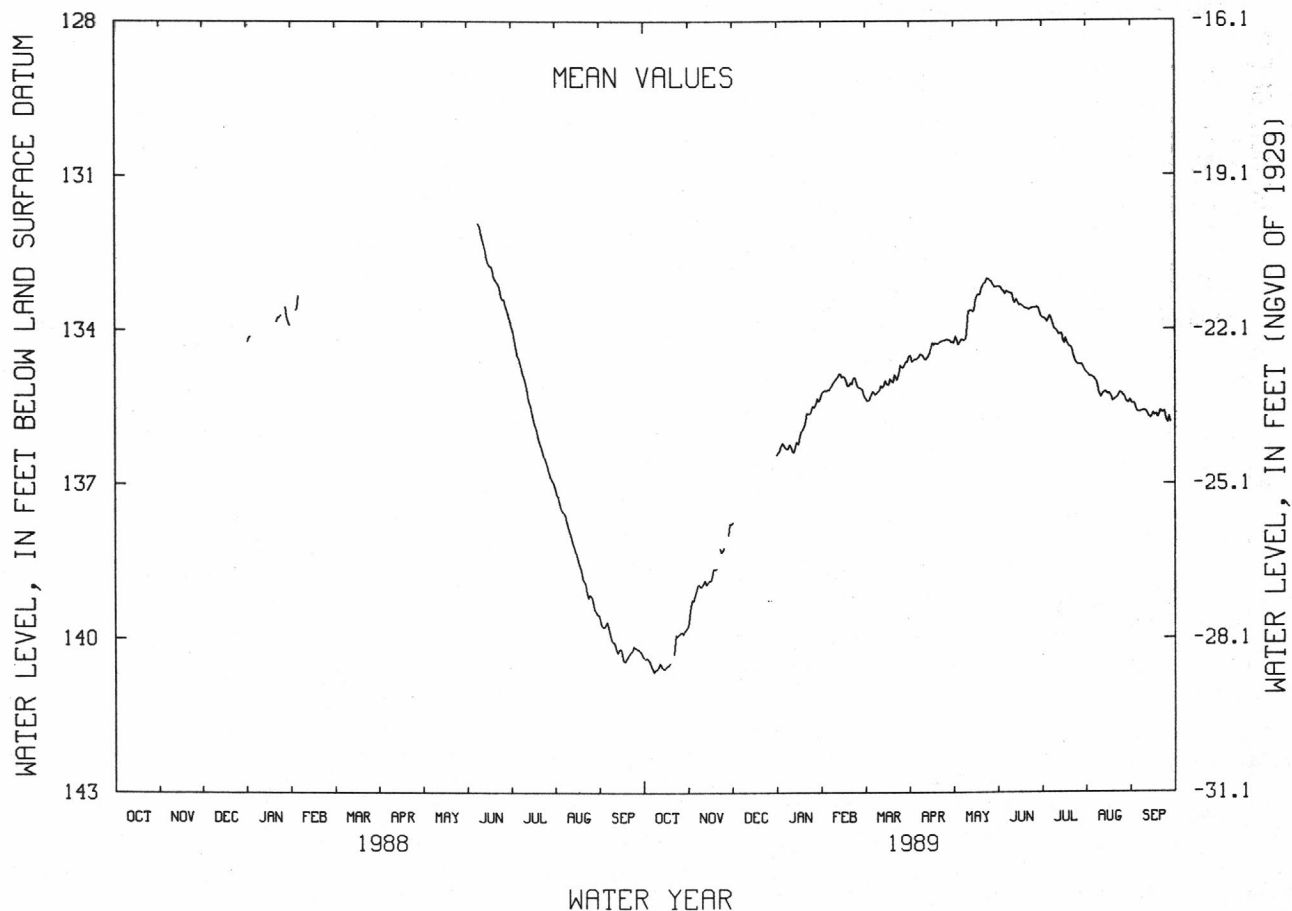
EXTREMES FOR PERIOD OF RECORD---Highest water level, 131.88 ft below land-surface datum, June 8, 1988; lowest, 140.65 ft below land-surface datum, Oct. 6, 7, 1988.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	140.51	139.10	---	136.29	135.17	135.26	134.57	134.29	133.31	133.80	134.93	135.60
10	140.55	138.93	---	136.37	134.91	135.20	134.54	133.94	133.30	134.00	135.31	135.59
15	140.56	138.87	---	136.06	134.93	134.99	134.39	133.62	133.52	134.21	135.26	135.63
20	---	138.40	---	135.61	135.05	135.03	134.27	133.21	133.59	134.32	135.35	135.58
25	139.89	138.22	---	135.51	135.12	134.69	134.20	133.02	133.57	134.67	135.27	135.81
EOM	139.69	137.74	136.37	135.20	135.26	134.51	134.23	133.16	133.74	134.82	135.42	---
MEAN	140.28	138.70	---	135.90	135.04	135.02	134.38	133.57	133.45	134.23	135.21	135.63
WTR YR 1989	MEAN 135.54 HIGH 132.99 MAY 24 LOW 140.65 OCT 6,7											

NJ-WRD WELL NO.25-0637



MONMOUTH COUNTY

401105074120204. Local I.D., Howell Twp. 4 Obs. NJ-WRD Well Number, 25-0638.

LOCATION.--Lat 40°11'05", long 74°12'02", Hydrologic Unit 02040301, on the south side of Peskin Rd., about 5000 ft east of the intersection of Georgia Tavern and Peskin Roads, Howell Twp.

Owner: U.S. Geological Survey.

AQUIFER.--Englishtown aquifer system of Cretaceous age.

WELL CHARACTERISTICS.--Drilled artesian observation well, diameter 4 in, depth 499 ft, screened 483 to 493 ft.

INSTRUMENTATION.--Digital water-level recorder--60-minute punch.

DATUM.--Land-surface datum is 112.1 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top edge of recorder shelf, 1.80 ft above land-surface datum.

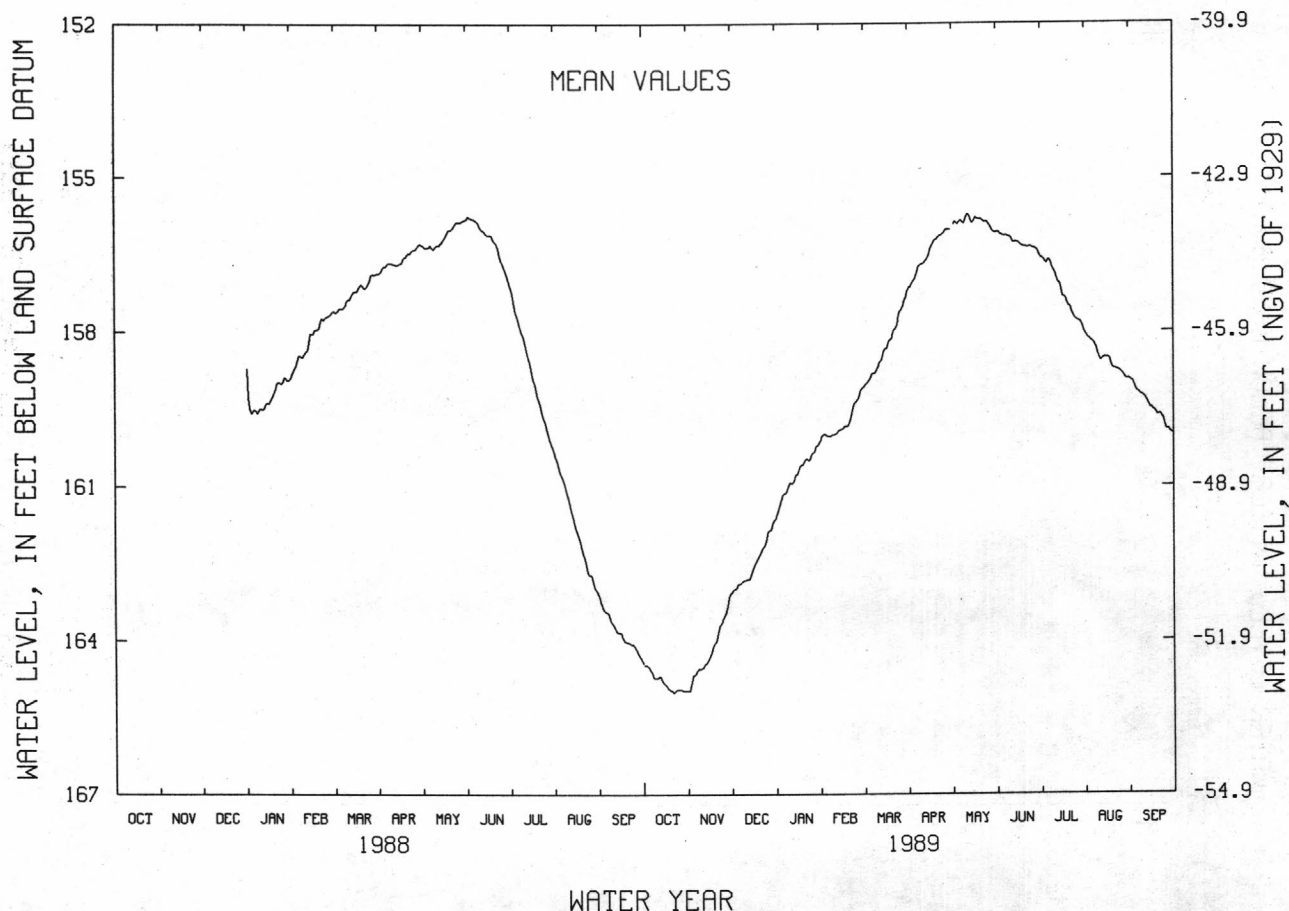
PERIOD OF RECORD.--December 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 155.72 ft below land-surface datum, May 11, 12, 1989; lowest, 165.02 ft below land-surface datum, Oct. 21, 1988.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DAY	MEAN VALUES											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	164.57	164.65	162.90	161.14	160.04	158.93	157.00	155.92	156.15	156.69	158.19	159.16
10	164.73	164.52	162.82	160.94	159.97	158.73	156.70	155.90	156.17	156.84	158.53	159.27
15	164.85	164.29	162.55	160.69	159.86	158.38	156.53	155.90	156.29	157.20	158.51	159.48
20	164.98	163.91	162.28	160.48	159.69	158.15	156.22	155.83	156.36	157.51	158.72	159.60
25	164.95	163.50	161.87	160.35	159.30	157.68	156.10	155.88	156.38	157.77	158.80	159.90
EOM	164.98	163.06	161.54	160.03	159.10	157.24	156.02	156.09	156.52	158.02	158.91	160.00
MEAN	164.81	164.10	162.42	160.69	159.75	158.29	156.50	155.88	156.28	157.24	158.56	159.49
WTR YR 1989	MEAN 159.51 HIGH 155.72 MAY 11, 12 LOW 165.02 OCT 21											

NJ-WRD WELL NO.25-0638



MONMOUTH COUNTY

401105074120205. Local I.D., Howell Twp. 5 Obs. NJ-WRD Well Number, 25-0639.

LOCATION.--Lat 40°11'05", long 74°12'02", Hydrologic Unit 02040301, on the south side of Peskin Rd., about 5000 ft east of the intersection of Georgia Tavern and Peskin Roads, Howell Twp.

Owner: U.S. Geological Survey.

AQUIFER.--Upper aquifer, Potomac-Raritan-Magothy aquifer system of Cretaceous age.

WELL CHARACTERISTICS.--Drilled artesian observation well, diameter 4 in, depth 907 ft, screened 891 to 901 ft.

INSTRUMENTATION.--Digital water-level recorder--60-minute punch.

DATUM.--Land-surface datum is 111.7 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top edge of recorder shelf, 2.40 ft above land-surface datum.

PERIOD OF RECORD.--March 1988 to current year.

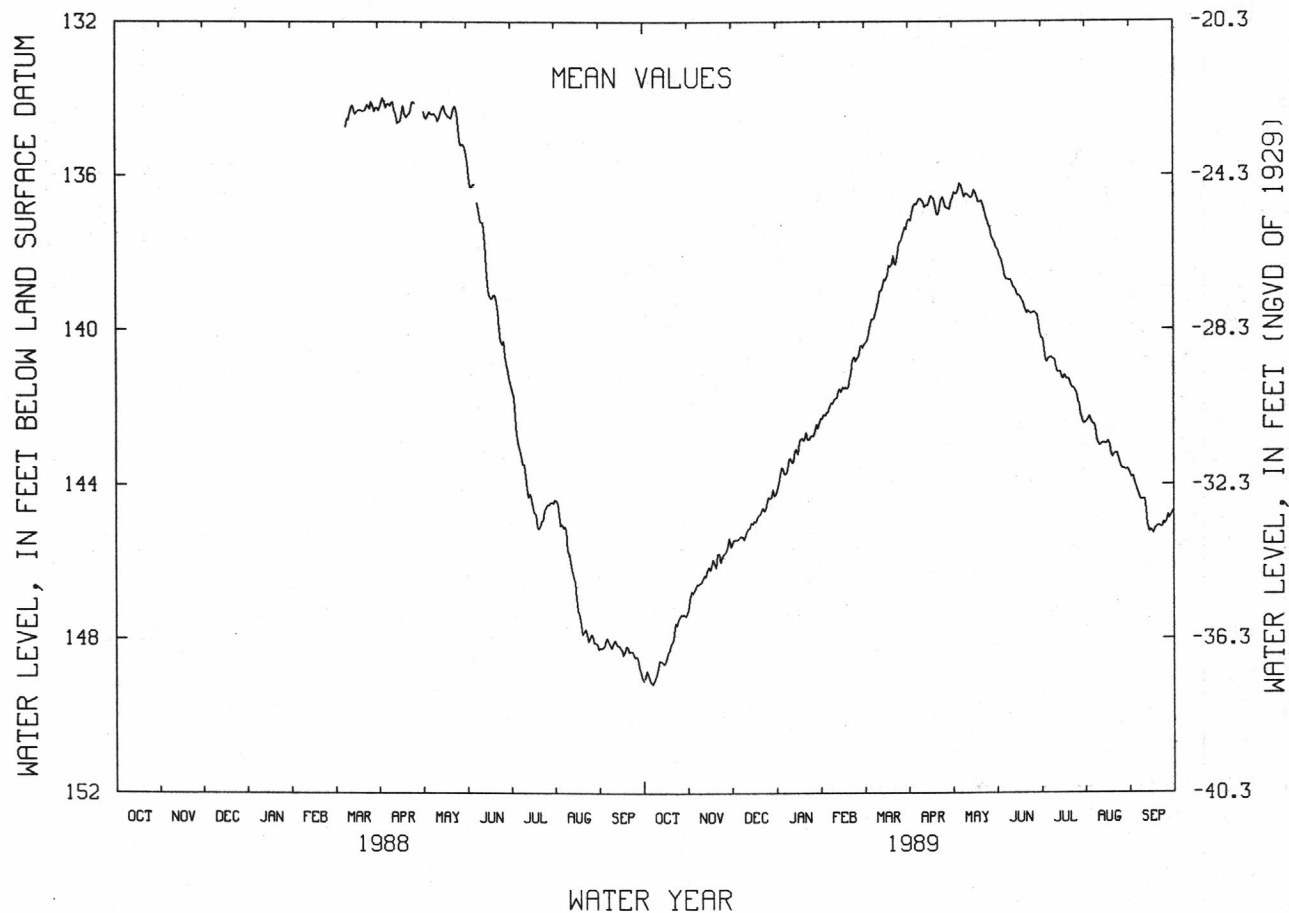
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 133.93 ft below land-surface datum, April 4, 1988; lowest, 149.23 ft below land-surface datum, Oct. 6,7, 1988.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	149.13	146.68	145.38	143.72	142.00	139.89	136.74	136.40	138.44	140.83	142.42	144.13
10	148.76	146.43	145.23	143.41	141.75	139.37	136.66	136.49	138.70	140.79	142.98	144.39
15	148.62	146.22	144.94	142.88	141.51	138.69	136.68	136.53	139.11	141.24	142.91	145.22
20	148.10	145.80	144.69	142.64	141.11	138.30	137.02	136.68	139.45	141.26	143.22	145.07
25	147.43	145.77	144.31	142.74	140.69	137.77	136.67	137.19	139.56	141.65	143.57	144.95
EOM	147.27	145.53	144.09	142.29	140.47	137.19	136.66	137.87	140.06	142.40	143.72	144.67
MEAN	148.29	146.18	144.88	143.02	141.40	138.75	136.78	136.77	139.05	141.25	143.03	144.72
WTR YR 1989	MEAN 142.02 HIGH 136.14 MAY 6 LOW 149.23 OCT 6,7											

NJ-WRD WELL NO.25-0639



MONMOUTH COUNTY

400711074020201. Local I.D., DOE - Sea Girt Obs. NJ-WRD Well Number, 25-0486.

LOCATION.--Lat 40°07'11", long 74°02'02", Hydrologic Unit 02030104, at the National Guard Camp, Sea Girt, Manasquan Boro.

Owner: State of New Jersey.

AQUIFER.--Wenonah-Mount Laurel aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled artesian observation well, diameter 4 in, depth 614 ft, perforated casing 604 to 614 ft.

INSTRUMENTATION.--Digital water-level recorder--60-minute punch.

DATUM.--Land-surface datum is 10 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring point: Top edge of recorder shelf, 3.20 ft above land-surface datum.

REMARKS.--Water level affected by tidal fluctuation and nearby pumping.

PERIOD OF RECORD.--May 1984 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 176.58 ft below land-surface datum, May 25, 1984; lowest, 195.60 ft below land-surface datum, Sept. 17, 1988.

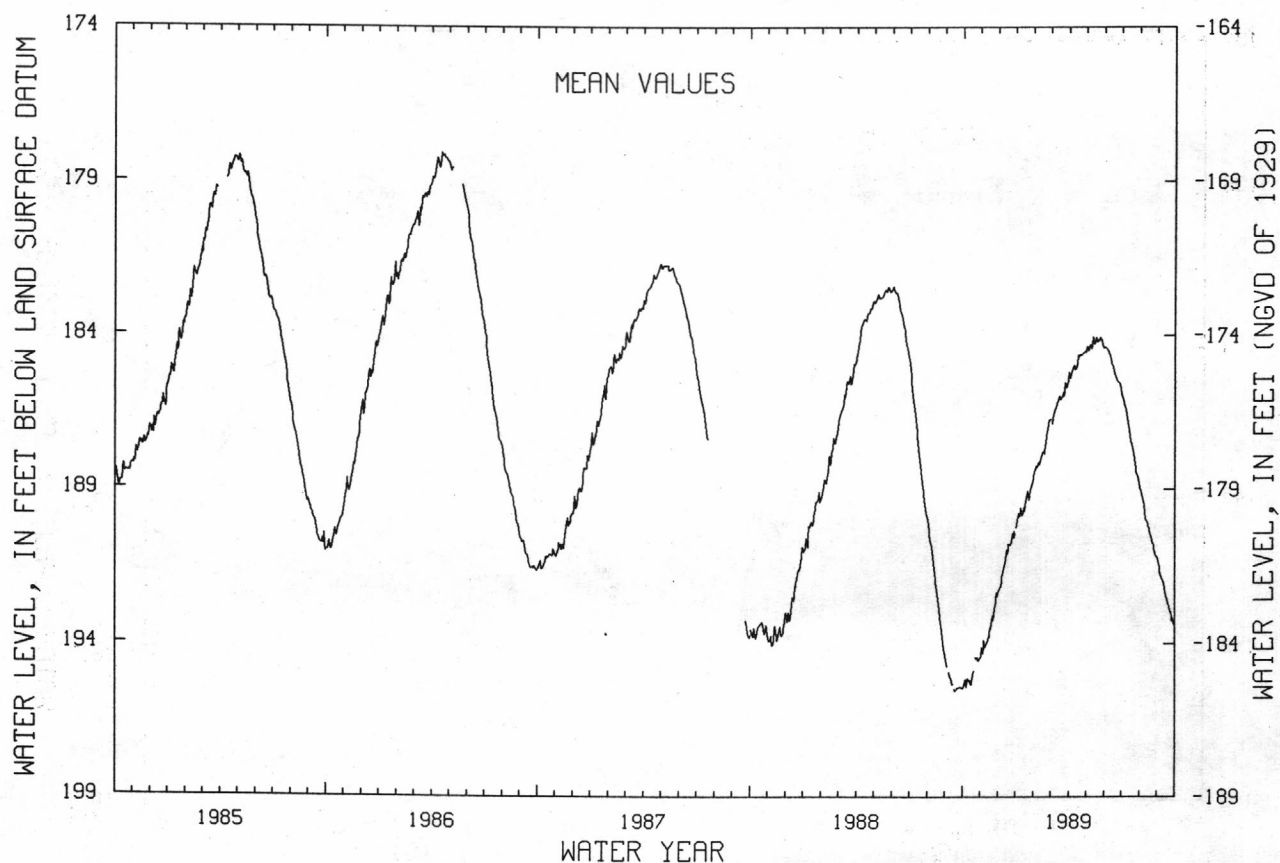
WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	195.16	194.11	192.15	189.89	188.28	186.58	185.23	184.52	184.44	186.23	189.23	191.74
10	195.23	194.04	191.56	189.85	188.19	186.30	185.06	184.33	184.62	186.71	189.95	192.00
15	195.34	193.79	190.96	189.52	187.77	185.97	184.92	184.29	184.99	187.26	190.20	192.48
20	194.89	193.26	190.83	189.06	187.48	186.00	184.67	184.20	185.36	187.76	190.55	192.79
25	194.45	192.77	190.43	188.96	186.74	185.54	184.62	184.06	185.52	188.41	190.91	193.28
EOY	194.55	192.47	190.26	188.43	186.73	185.21	184.54	184.41	185.90	188.93	191.26	193.42
MEAN	195.00	193.53	191.21	189.40	187.70	186.07	184.87	184.26	185.04	187.38	190.22	192.46

WTR YR 1989 MEAN 188.92 HIGH 183.97 MAY 25 LOW 195.53 OCT 1

NJ-WRD WELL NO.25-0486



MONMOUTH COUNTY

400832074082101. Local I.D., Allaire State Park C Obs. NJ-WRD Well Number, 25-0429.

LOCATION.--Lat 40°08'34", long 74°08'34", Hydrologic Unit 02040301, about 1.3 mi southeast of Lower Squankum, in Allaire State Park, Wall Township.

Owner: U.S. Geological Survey.

AQUIFER.--Englishtown aquifer system of Cretaceous age.

WELL CHARACTERISTICS.--Drilled artesian observation well, diameter 6 in, depth 633 ft, screened 623 to 633 ft.

INSTRUMENTATION.--Water-level extremes recorder, February 1977 to current year. Water-level recorder, January 1964 to July 1975.

DATUM.--Land-surface datum is 97.93 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Front edge of cutout in recorder housing, 1.64 ft above land-surface datum.

PERIOD OF RECORD.--January 1964 to July 1975, February 1977 to current year. Records for 1964 to 1975 are unpublished and are available in files of New Jersey District Office.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 141.05 ft below land-surface datum, Apr. 8, 1964; lowest, 249.89 ft below land-surface datum, between June 24 and Sept. 28, 1988.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

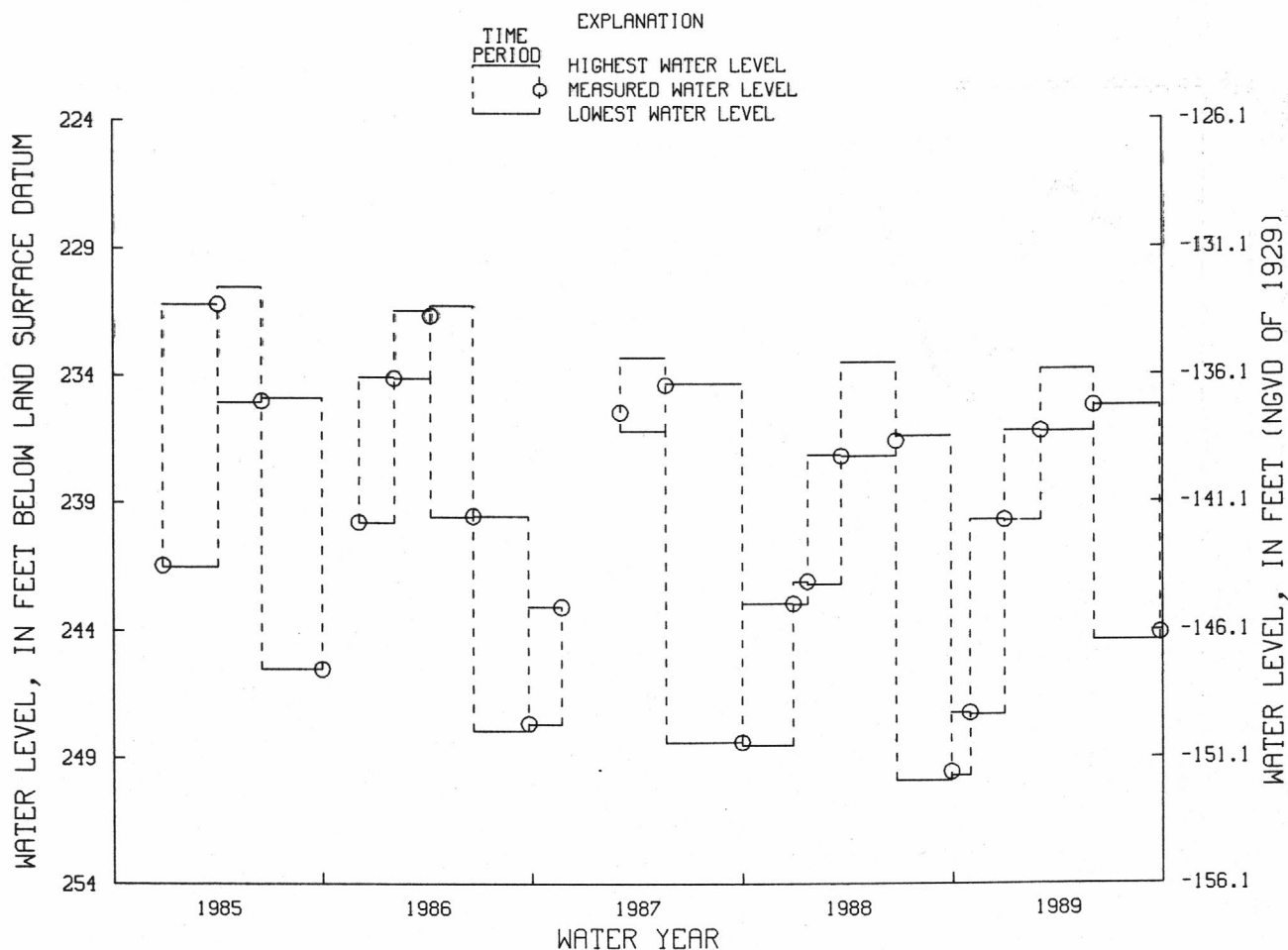
WATER-LEVEL EXTREMES

PERIOD	HIGHEST WATER LEVEL	LOWEST WATER LEVEL
OCT. 31, 1988 TO DEC. 30, 1988	239.69	247.29
DEC. 30, 1988 TO MAR. 2, 1989	236.21	239.73
MAR. 2, 1989 TO JUNE 2, 1989	233.78	236.23
JUNE 2, 1989 TO SEPT. 26, 1989	235.22	244.38

MEASURED WATER LEVEL

DATE	WATER LEVEL
DEC. 30, 1988	239.71
MAR. 2, 1989	236.21
JUNE 2, 1989	235.22
SEPT. 26, 1989	244.10

NJ-WRD WELL NO. 25-0429



MONMOUTH COUNTY

401542074053001. Local I.D., Ft. Monmouth 1-NCO. NJ-WRD Well Number, 25-0353.

LOCATION.--Lat 40°15'42", long 74°05'30", Hydrologic Unit 02030104, at Training Center, Wyckoff Rd. and Wayside Rd. New Shrewsbury Borough.

Owner: U.S. Army.

AQUIFER.--Wenonah-Mount Laurel aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled artesian observation well, diameter 4 in, depth 327 ft, screened 321 to 327 ft.

INSTRUMENTATION.--Digital water-level recorder--60-minute punch.

DATUM.--Land surface datum is 140 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring point: Top edge of recorder shelf, 1.50 ft above land surface datum.

PERIOD OF RECORD.--February 1985 to current year. Records for 1985 are unpublished and are available in files of New Jersey District Office.

EXTREMES FOR PERIOD OF RECORD.--Highest water level 148.88 ft below land surface datum, May 31-Jun. 2, 1985; lowest, 155.63 ft below land surface datum Dec. 22, 23, 1988.

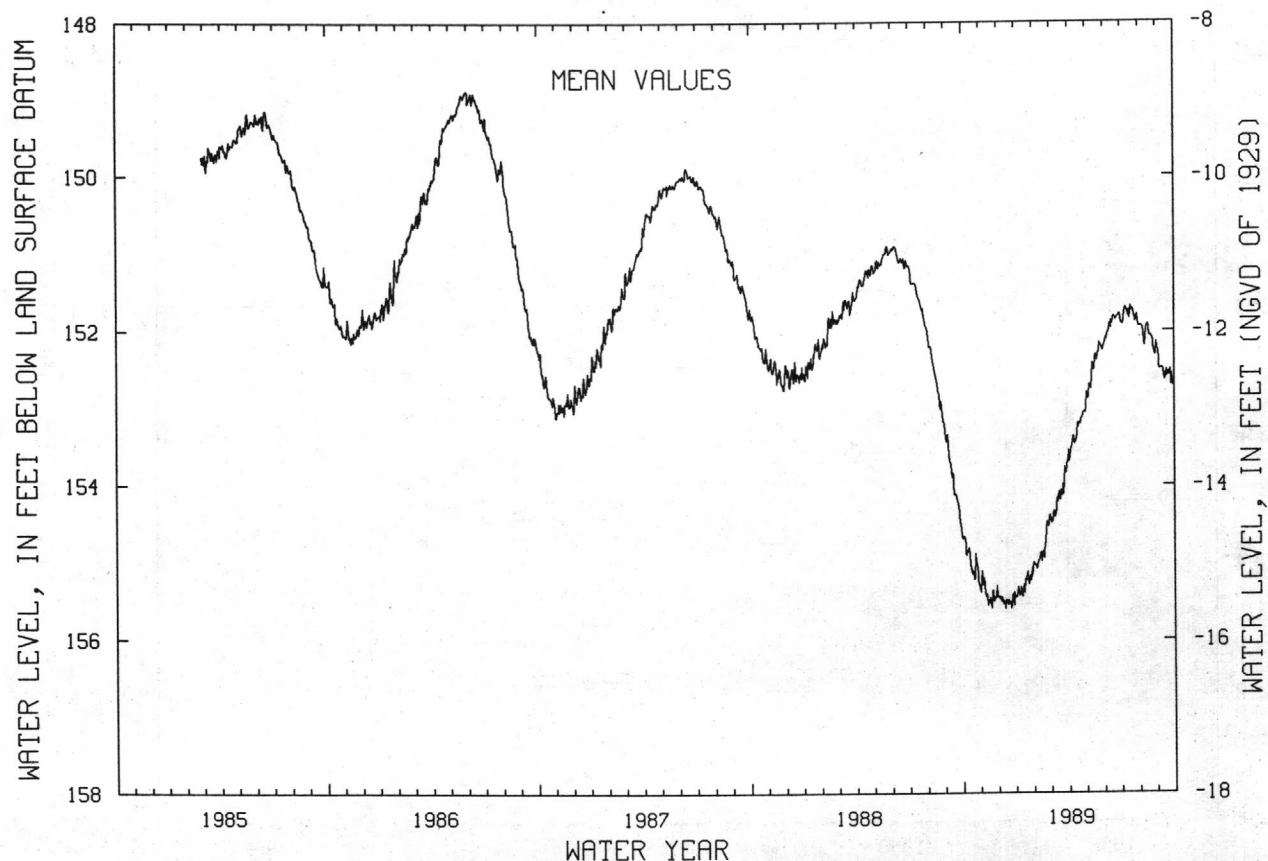
WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	154.77	155.20	155.51	155.43	155.06	154.38	153.54	152.85	152.12	151.86	151.93	152.50
10	154.84	155.41	155.50	155.43	154.96	154.32	153.44	152.61	151.91	151.73	152.20	152.48
15	155.08	155.53	155.48	155.22	154.86	154.08	153.35	152.49	151.91	151.84	151.94	152.56
20	155.22	155.38	155.54	155.12	154.75	154.13	153.22	152.32	151.85	151.72	152.06	152.53
25	155.07	155.47	155.41	155.23	154.50	153.77	153.10	152.19	151.82	151.88	152.22	152.71
EOM	155.38	155.46	155.43	154.99	154.44	153.55	153.01	152.19	151.90	151.94	152.23	152.72
MEAN	155.01	155.41	155.49	155.26	154.81	154.12	153.31	152.46	151.93	151.81	152.07	152.54

WTR YR 1989 MEAN 153.68 HIGH 151.65 JUL 17 LOW 155.63 DEC 22,23

NJ-WRD WELL NO.25-0353



MONMOUTH COUNTY

402208074145201. Local I.D., Marlboro 1 Obs. NJ-WRD Well Number, 25-0272.

LOCATION.--Lat 40°22'08", long 74°14'52", Hydrologic Unit 02030104, on the west side of New Jersey Route 79, 0.9 mi south of Morganville, Marlboro Township.

Owner: Marlboro Township Municipal Utilities Authority.

AQUIFER.--Farrington aquifer, Potomac-Raritan-Magothy aquifer system of Cretaceous age.

WELL CHARACTERISTICS.--Drilled artesian observation well, diameter 6 in, depth 680 ft, screened 670 to 680 ft.

INSTRUMENTATION.--Digital water-level recorder--60-minute punch.

DATUM.--Land-surface datum is 116.93 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top edge of recorder shelf, 2.50 ft above land-surface datum.

REMARKS.--Water level affected by nearby pumping.

PERIOD OF RECORD.--January 1973 to July 1975, March 1977 to current year. Records for 1973 to 1977 are unpublished and are available in files of New Jersey District Office.

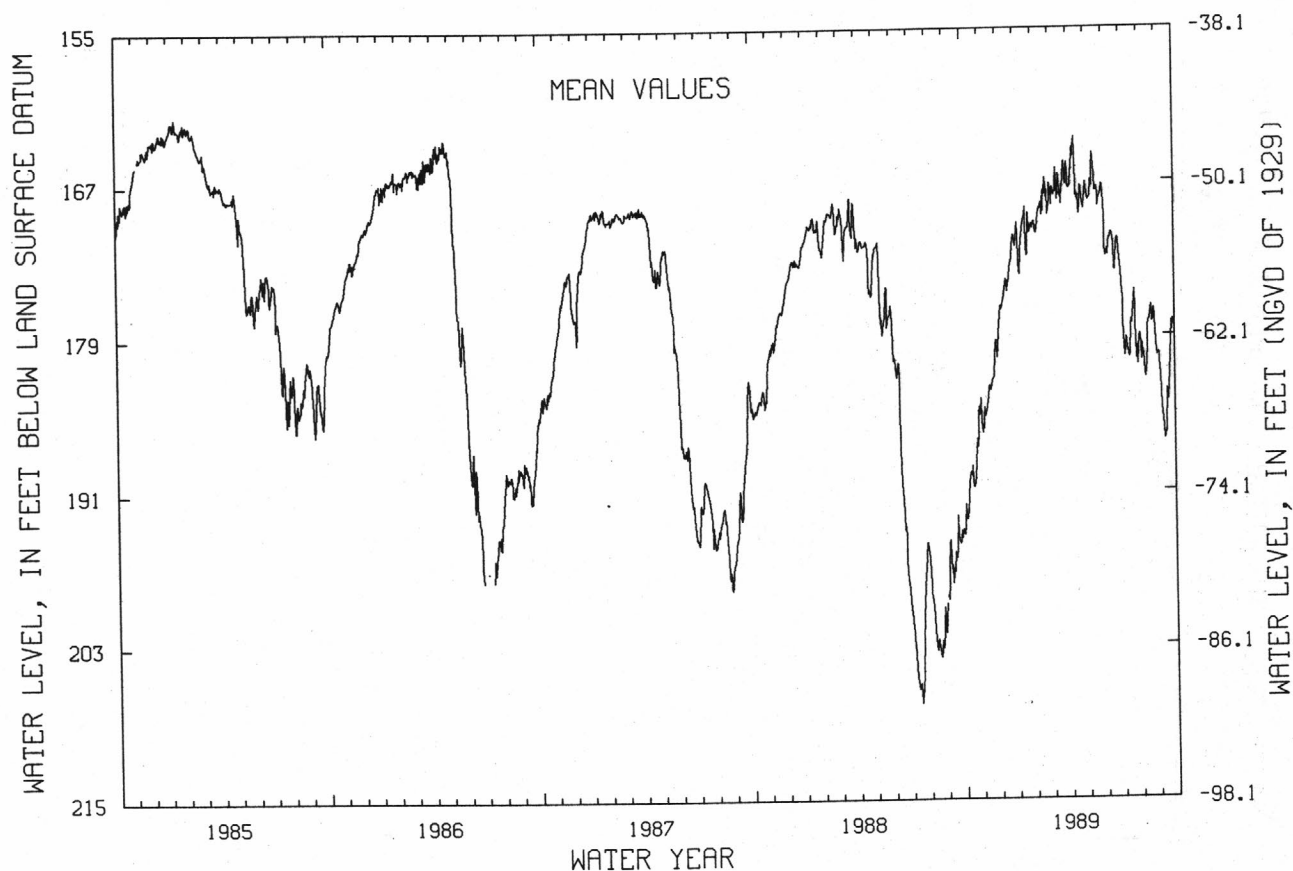
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 144.06 ft below land-surface datum, Apr. 4, 1973; lowest, 207.78 ft below land-surface datum, Jul. 16, 1988.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	192.98	186.11	176.63	173.31	171.04	167.46	167.39	168.26	172.85	179.02	180.88	181.52
10	190.30	184.82	176.20	171.60	169.49	167.86	165.12	166.88	171.46	179.44	181.92	185.49
15	189.87	182.79	174.90	169.82	169.63	167.86	168.16	164.69	171.04	180.71	178.37	186.41
20	190.76	182.49	174.52	172.80	168.03	168.78	169.53	167.44	174.01	177.36	176.95	182.87
25	187.53	179.62	171.84	170.97	169.59	165.58	168.34	168.28	171.44	178.14	177.04	178.10
EOM	183.82	179.86	172.05	170.29	168.55	166.43	167.99	168.18	174.07	179.23	180.60	178.64
MEAN	189.57	183.14	174.68	171.17	169.16	167.26	167.19	167.49	172.06	178.74	179.21	182.25
WTR YR 1989	MEAN 175.20 HIGH 163.28 APR 12 LOW 194.38 OCT 1											

NJ-WRD WELL NO.25-0272



MONMOUTH COUNTY

402626074114204. Local I.D., Keyport Borough WD 4 Obs. NJ-WRD Well Number, 25-0206.

LOCATION.--Lat 40°26'25", long 74°11'45", Hydrologic Unit 02030104, at the unused Myrtle Avenue Water Plant, Keyport.

Owner: Keyport Borough Water Department.

AQUIFER.--Old Bridge aquifer, Potomac-Raritan-Magothy aquifer system of Cretaceous age.

WELL CHARACTERISTICS.--Drilled artesian observation well, diameter 8 in, depth 249 ft, screened 225 to 249 ft.

INSTRUMENTATION.--Water-level extremes recorder. Digital water-level recorder, June 1978 to November 1987.

DATUM.--Land-surface datum is 14.47 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Front edge of cutout in recorder housing, 2.47 ft above land-surface datum.

REMARKS.--Water level affected by tidal fluctuation. Water level affected by USGS aquifer test, April 22-28, 1986.

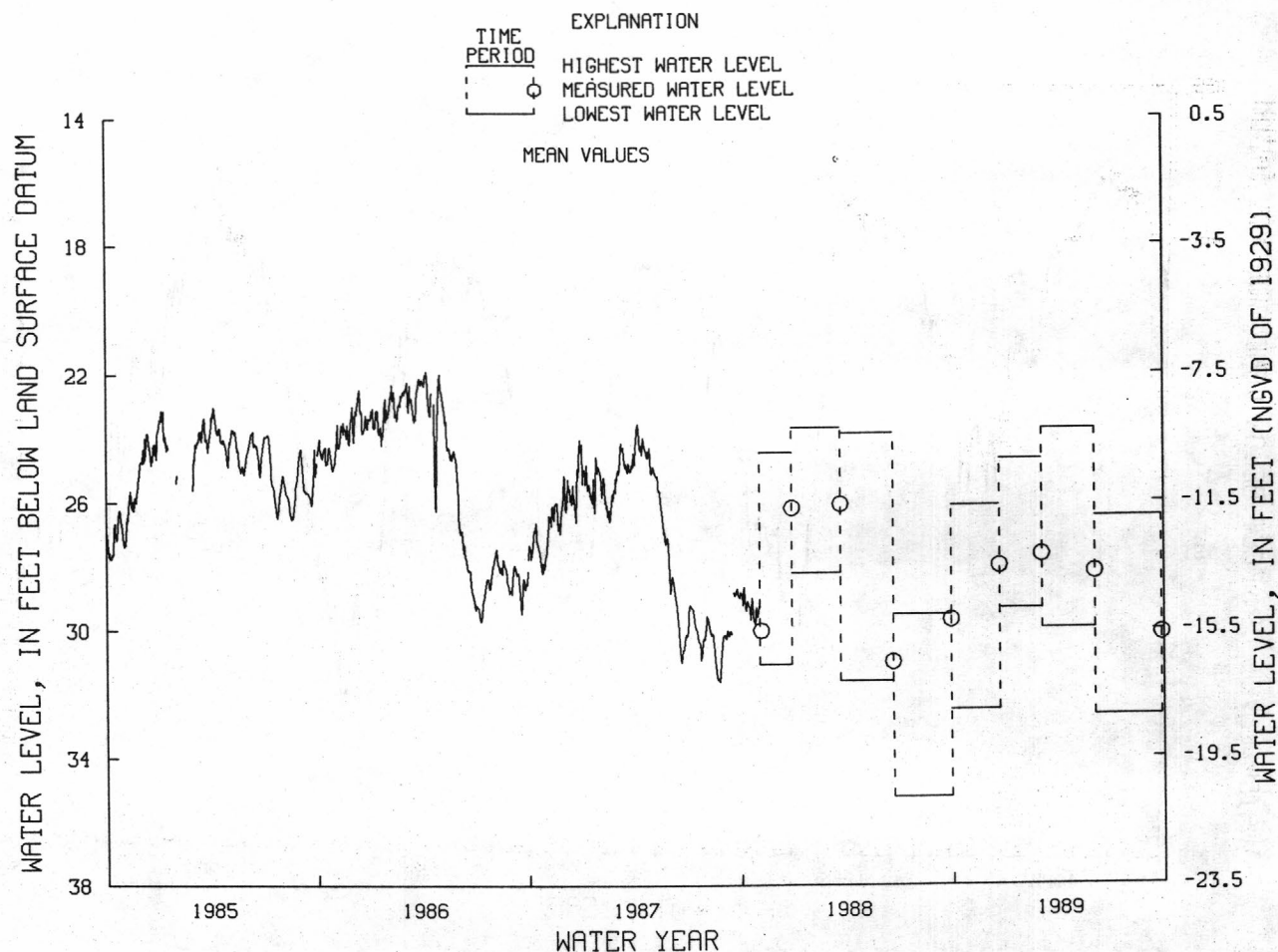
PERIOD OF RECORD.--June 1978 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 20.57 ft below land-surface datum, Mar. 27, 1986; lowest, 35.22 ft below land-surface datum, between June 20 and Sept. 28, 1988.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

WATER-LEVEL EXTREMES			MEASURED WATER LEVEL	
PERIOD	HIGHEST WATER LEVEL	LOWEST WATER LEVEL	DATE	WATER LEVEL
SEPT. 28, 1988 TO DEC. 21, 1988	26.09	32.49	DEC. 21, 1988	27.99
DEC. 21, 1988 TO MAR. 3, 1989	24.67	29.32	MAR. 3, 1989	27.64
MAR. 3, 1989 TO JUNE 2, 1989	23.71	29.93	JUNE 2, 1989	28.18
JUNE 2, 1989 TO SEPT. 26, 1989	26.46	32.67	SEPT. 26, 1989	30.11

NJ-WRD WELL NO. 25-0206



MORRIS COUNTY

404639074230001. Local I.D., Briarwood School Obs. NJ-WRD Well Number, 27-0012.

LOCATION.--Lat 40°46'39", long 74°23'00", Hydrologic Unit 02030103, at Briarwood School, Florham Park Borough.

Owner: U.S. Geological Survey.

AQUIFER.--Stratified drift of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in, depth 110 ft, screened 100 to 110 ft.

INSTRUMENTATION.--Digital water-level recorder--60-minute punch.

DATUM.--Land-surface datum is 198 ft above National Geodetic Vertical Datum of 1929, by altimeter.

Measuring point: Top edge of recorder shelf, 3.00 ft above land-surface datum.

REMARKS.--Missing record from August 27 to September 28 was due to recorder malfunction.

PERIOD OF RECORD.--March 1967 to May 1975, April 1977 to current year. Records for 1967 to 1975 are unpublished and are available in files of New Jersey District Office.

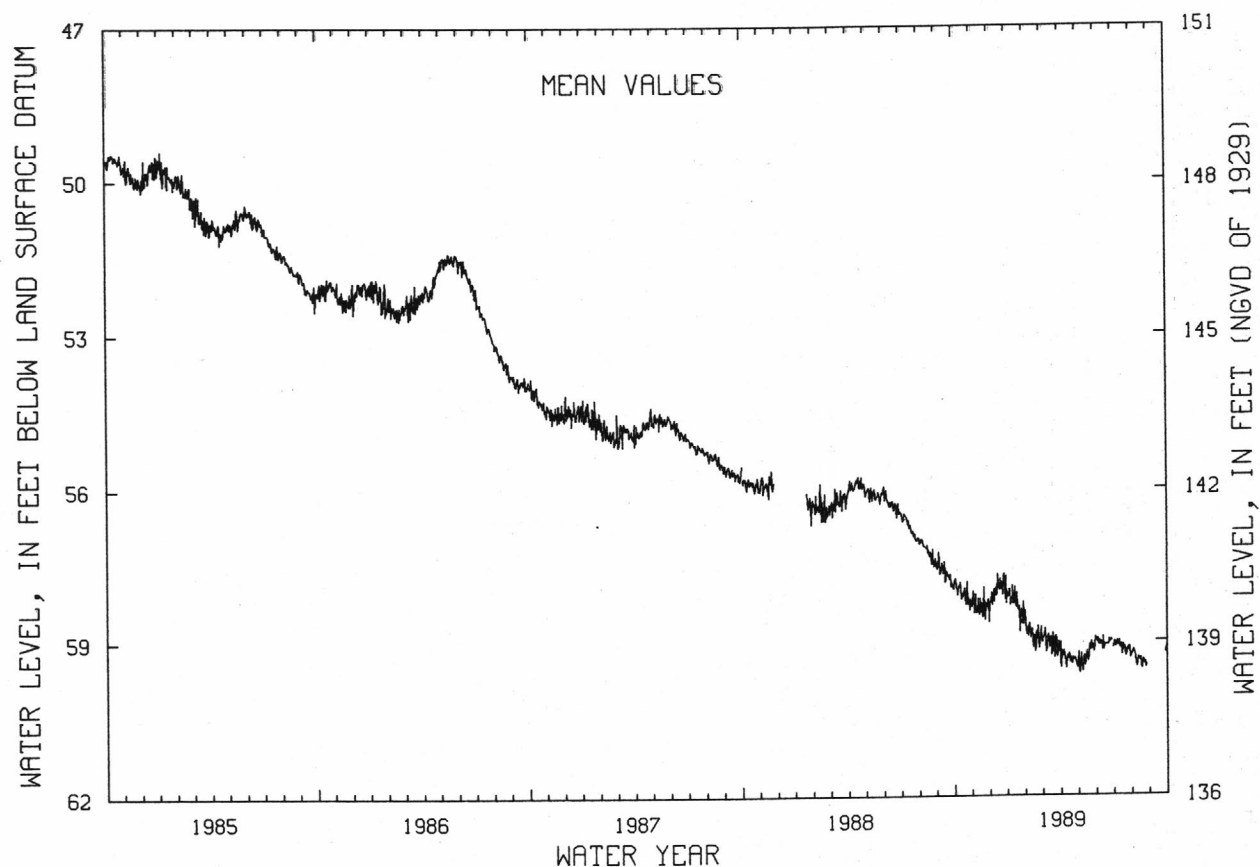
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 34.17 ft below land-surface datum, June 3, 1968; lowest, 59.71 ft below land-surface datum, May 4, 1989.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	58.00	58.07	58.13	58.27	58.73	58.76	59.30	59.43	59.08	59.10	59.23	---
10	57.84	58.16	57.95	58.25	58.81	58.98	59.54	59.34	59.04	59.00	59.44	---
15	58.05	58.44	57.93	58.04	58.95	58.92	59.25	59.29	59.09	59.28	59.36	---
20	58.27	57.94	57.82	58.31	58.96	59.02	59.45	59.07	59.09	59.11	59.36	---
25	58.26	58.33	57.99	58.66	58.88	58.98	59.34	59.16	59.02	59.16	59.53	---
EOM	58.28	58.22	58.08	58.67	59.03	59.02	59.44	58.96	59.12	59.28	---	59.37
MEAN	58.09	58.31	57.99	58.31	58.90	59.05	59.36	59.28	59.05	59.14	59.37	---
WTR YR 1989	MEAN 58.80 HIGH 57.39 DEC 28 LOW 59.71 MAY 4											

NJ-WRD WELL NO.27-0012



MORRIS COUNTY

405027074232301. Local I.D., Troy Meadows 1 Obs. NJ-WRD Well Number, 27-0020.

LOCATION.--Lat 40°50'27", long 74°23'23", Hydrologic Unit 02030103, on the east side of Beverwyck Road, 0.8 mi north of intersection with Troy Road, Parsippany-Troy Hills Township.

Owner: U.S. Geological Survey.

AQUIFER.--Stratified drift of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in, depth 89 ft, screened 79 to 89 ft.

INSTRUMENTATION.--Water-level extremes recorder, April 1977 to current year. Water-level recorder, December 1965 to July 1970.

DATUM.--Land-surface datum is 192.07 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Front edge of cutout in recorder housing, 3.32 ft above land-surface datum.

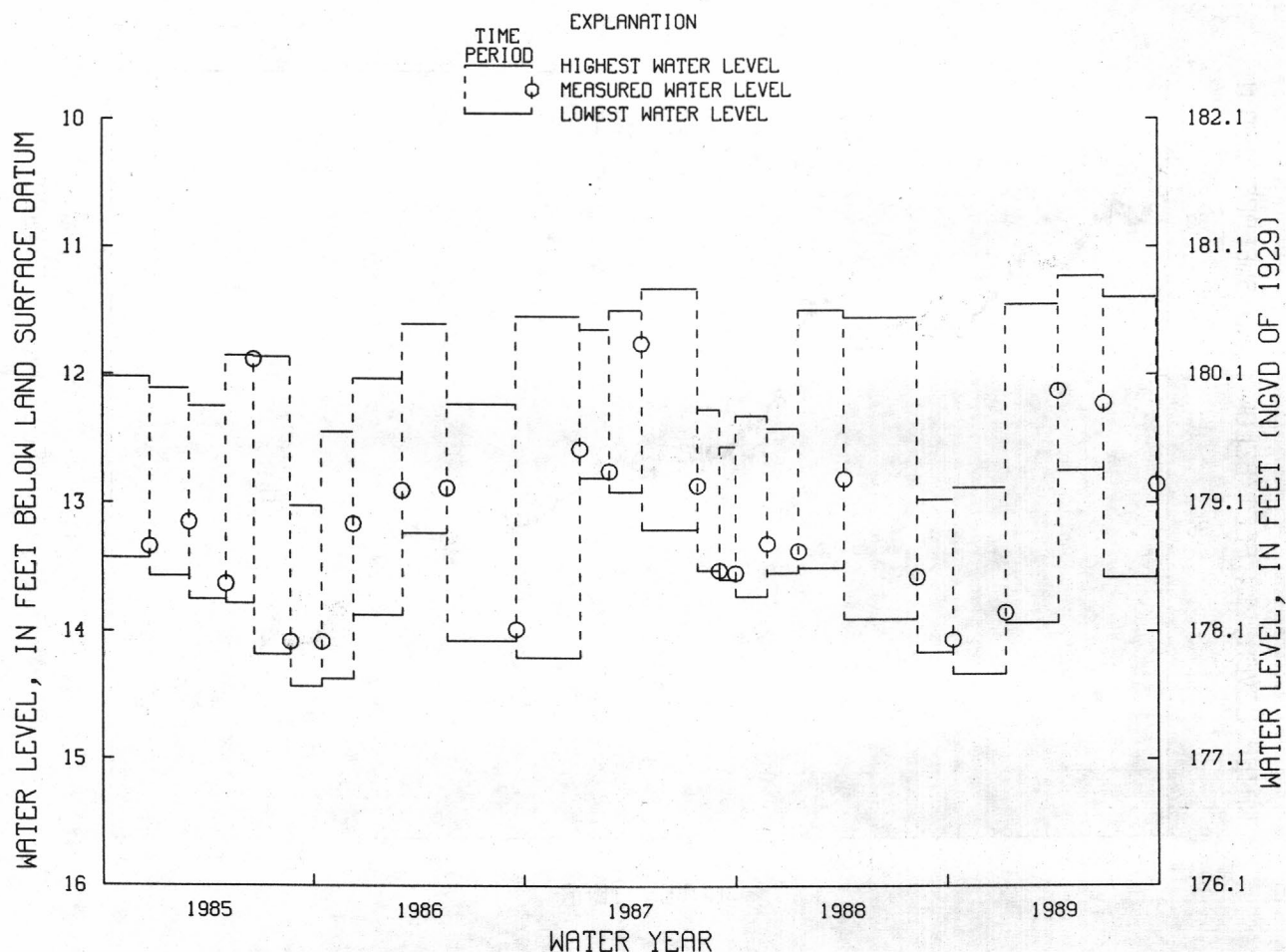
PERIOD OF RECORD.--December 1965 to July 1970, April 1977 to current year. Periodic manual measurements, December 1970 to February 1975. Records for 1965 to 1981 are unpublished and are available in files of New Jersey District Office.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 6.00 ft below land-surface datum, Mar. 15-16, 1967 and June 15, 1968; lowest, 15.77 ft below land-surface datum, between Feb. 10 and May 31, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

WATER-LEVEL EXTREMES				MEASURED WATER LEVEL	
PERIOD		HIGHEST WATER LEVEL	LOWEST WATER LEVEL	DATE	WATER LEVEL
OCT. 11, 1988 TO JAN. 10, 1989		12.88	14.33	JAN. 10, 1989	13.85
JAN. 10, 1989 TO APR. 10, 1989		11.45	13.93	APR. 10, 1989	12.13
APR. 10, 1989 TO JUNE 28, 1989		11.23	12.75	JUNE 28, 1989	12.23
JUNE 28, 1989 TO SEPT. 28, 1989		11.40	13.58	SEPT. 28, 1989	12.86

NJ-WRD WELL NO. 27-0020



MORRIS COUNTY

405531074361901. Local I.D., Berkshire Valley TW-9. NJ-WRD Well Number, 27-0027.

LOCATION.--Lat 40°55'31", long 74°36'19", Hydrologic Unit 02030103, about 1,000 ft east of the intersection of Lower Berkshire Valley Rd and Minnisink Rd., Jefferson Township.

Owner: State of New Jersey.

AQUIFER.--Stratified drift of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in, depth 98 ft, screened 78 to 98 ft.

INSTRUMENTATION.--Digital water-level recorder--60-minute punch.

DATUM.--Land-surface datum is 725.64 ft above National Geodetic Vertical Datum of 1929 (levels by Woodward-Clyde Consultants).

Measuring point: Top of 6 inch casing, 2.25 ft above land surface datum.

PERIOD OF RECORD.--April 1985 to current year. Periodic manual measurements November 1981 to March 1985.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 9.25 ft below land-surface datum, May 18, 1989; lowest, 13.29 ft below land-surface datum, Oct. 20,21, 1988.

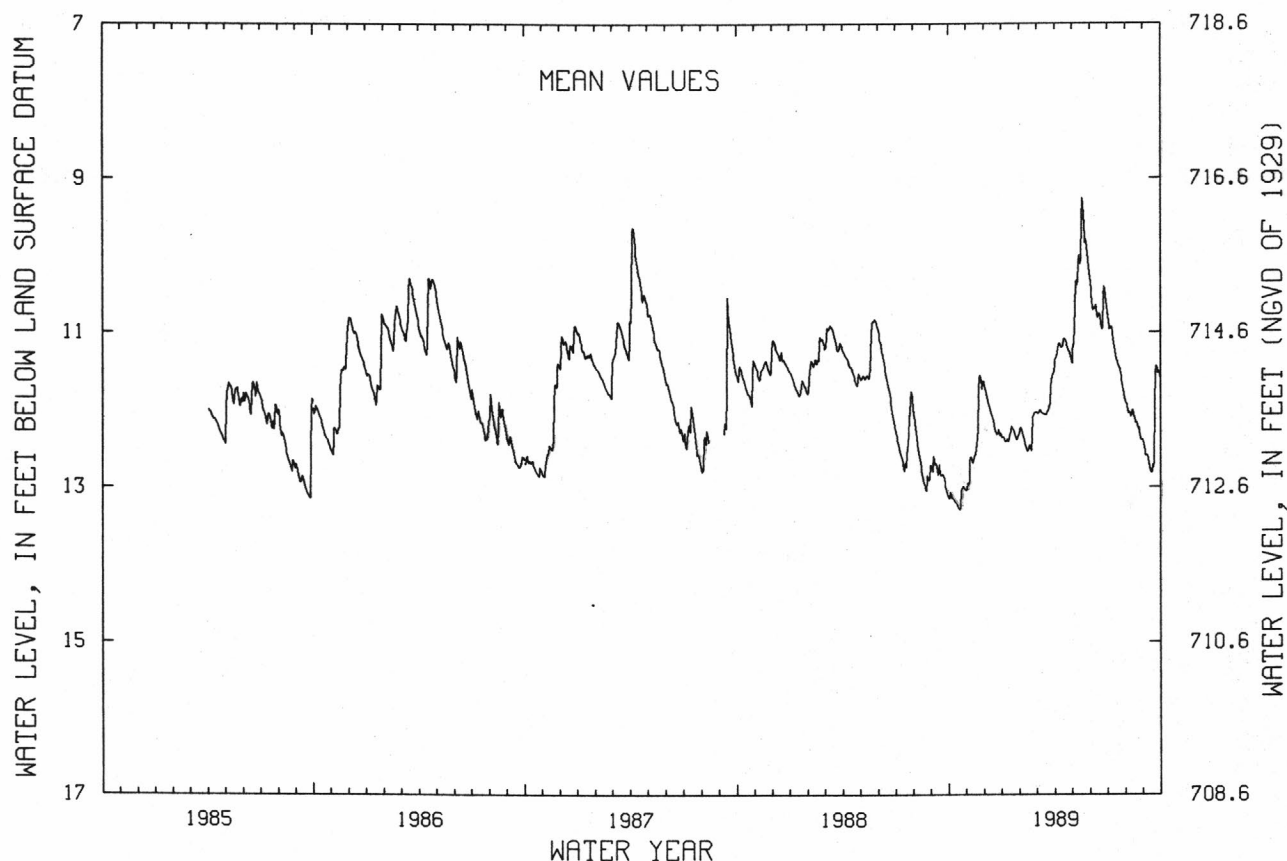
WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	13.12	12.91	11.84	12.39	12.34	12.04	11.27	11.17	10.68	10.95	12.01	12.60
10	13.17	12.66	11.97	12.40	12.46	12.05	11.15	10.34	10.65	11.09	12.09	12.70
15	13.23	12.58	12.12	12.28	12.51	12.05	11.18	10.12	10.80	11.32	12.08	12.78
20	13.29	12.27	12.28	12.26	12.53	12.02	11.13	9.48	10.93	11.45	12.17	11.95
25	12.99	11.63	12.26	12.39	12.04	11.72	11.23	9.83	10.41	11.63	12.29	11.53
EOM	13.06	11.65	12.36	12.26	12.03	11.43	11.38	10.29	10.74	11.89	12.42	11.61
MEAN	13.14	12.33	12.11	12.34	12.33	11.92	11.21	10.19	10.70	11.32	12.15	12.26

WTR YR 1989 MEAN 11.83 HIGH 9.25 MAY 18 LOW 13.29 OCT 20,21

NJ-WRD WELL NO.27-0027



MORRIS COUNTY

410207074270001. Local I.D., Green Pond TW5 Obs. NJ-WRD Well Number, 27-0028.

LOCATION.--Lat 41°02'07", long 74°27'00", Hydrologic Unit 02030103, about 500 ft east of Route 513 and 1.1 mi south of the intersection with Route 23, Rockaway Township.

Owner: State of New Jersey.

AQUIFER.--Stratified drift of Pleistocene age.

WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in, depth 120 ft, screened 80 to 120 ft.

INSTRUMENTATION.--Digital water-level recorder--60-minute punch.

DATUM.--Land-surface datum is 758.56 ft above National Geodetic Vertical Datum of 1929 (levels by Woodward-Clyde Consultants).

Measuring point: Top edge of recorder shelf, 1.20 ft above land-surface datum.

PERIOD OF RECORD.--November 1981 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 1.35 ft below land-surface datum, Apr. 5, 1984; lowest, 6.49 ft below land-surface datum, Aug. 23, 1988.

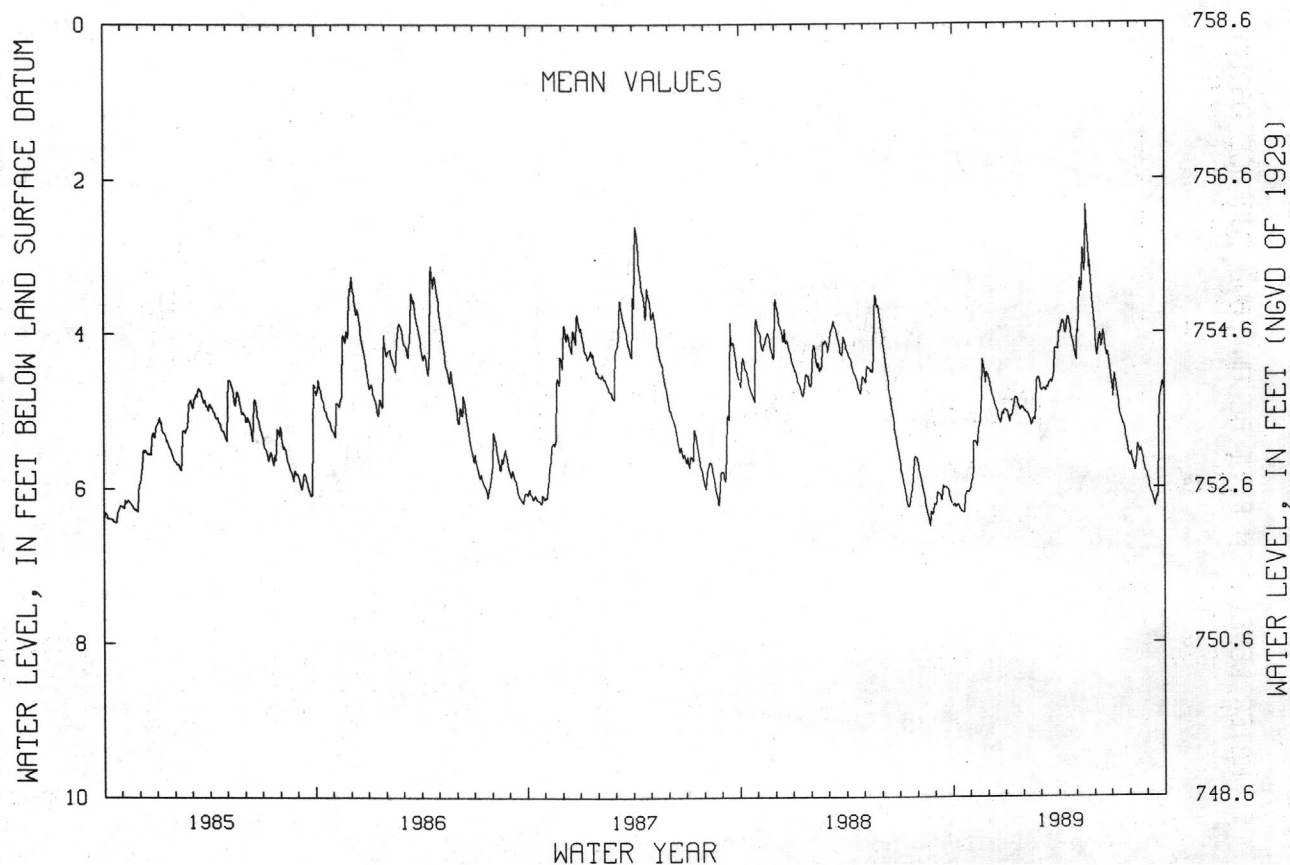
WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	6.22	5.76	4.71	5.10	5.04	4.73	3.97	4.00	4.26	4.71	5.62	6.02
10	6.21	5.39	4.83	5.08	5.10	4.75	3.91	3.32	4.01	4.76	5.78	6.14
15	6.28	5.25	4.98	4.88	5.16	4.65	4.00	3.20	4.10	5.03	5.45	6.16
20	6.32	4.81	5.11	4.84	5.13	4.65	3.92	2.78	4.21	5.18	5.51	5.32
25	6.04	4.57	5.03	5.00	4.58	4.21	4.11	3.19	4.28	5.34	5.68	4.77
EOM	6.06	4.52	4.99	4.98	4.68	4.07	4.32	3.81	4.59	5.58	5.86	4.79
MEAN	6.19	5.13	4.93	4.98	4.97	4.57	3.99	3.31	4.20	5.04	5.64	5.62

WTR YR 1989 MEAN 4.88 HIGH 2.26 MAY 17 LOW 6.33 OCT 20,21

NJ-WRD WELL NO.27-0028



OCEAN COUNTY

394829074053501. Local I.D., Island Beach 1 Obs. NJ-WRD Well Number, 29-0017.

LOCATION.--Lat 39°48'29", long 74°05'35", Hydrologic Unit 02040301, in Island Beach State Park, about 6.6 mi south of main entrance, Berkeley Township.

Owner: U.S. Geological Survey.

AQUIFER.--Kirkwood-Cohansey aquifer system of Miocene age.

WELL CHARACTERISTICS.--Drilled water-table observation well, diameter 6 in, depth 397 ft, screened 377 to 397 ft.

INSTRUMENTATION.--Water-level extremes recorder, February 1977 to current year. Water-level recorder, July 1962 to March 1975.

DATUM.--Land-surface datum is 8.50 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Front edge of cutout in recorder housing, 3.40 ft above land-surface datum.

REMARKS.--Water level affected by tidal fluctuation.

PERIOD OF RECORD.--July 1962 to March 1975, February 1977 to current year. Records for 1962 to 1975 are unpublished and are available in files of New Jersey District Office.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 0.05 ft below land-surface datum, Dec. 6, 1962; lowest, 6.14 ft below land-surface datum, between Dec. 13, 1978 and Jan. 10, 1979 and between Dec. 11, 1985 and Mar. 3, 1986.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

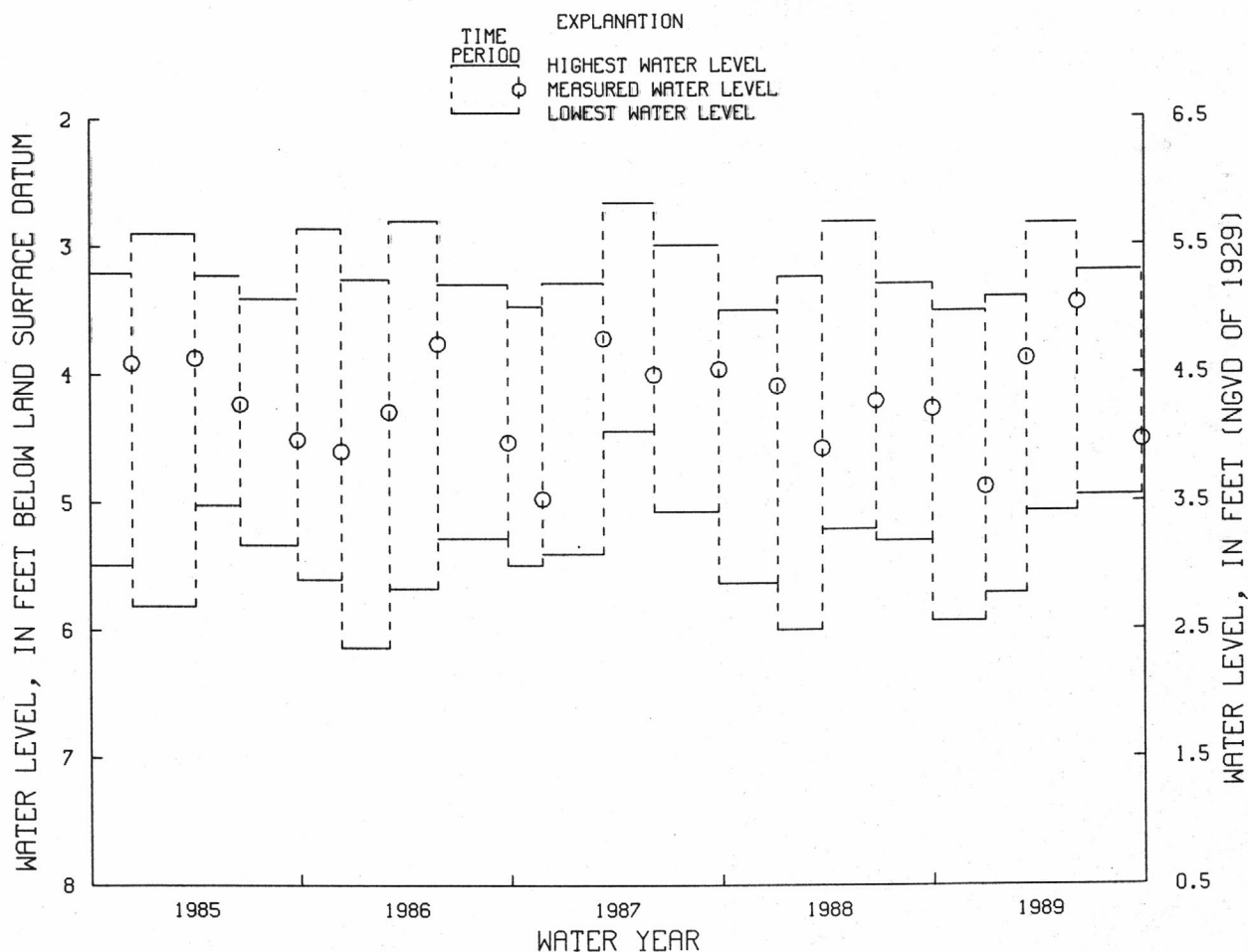
WATER-LEVEL EXTREMES

PERIOD	HIGHEST WATER LEVEL	LOWEST WATER LEVEL
SEPT. 29, 1988 TO DEC. 30, 1988	3.51	5.93
DEC. 30, 1988 TO MAR. 10, 1989	3.40	5.71
MAR. 10, 1989 TO JUNE 6, 1989	2.83	5.07
JUNE 6, 1989 TO SEPT. 26, 1989	3.20	4.95

MEASURED WATER LEVEL

DATE	WATER LEVEL
DEC. 30, 1988	4.88
MAR. 10, 1989	3.88
JUNE 6, 1989	3.45
SEPT. 26, 1989	4.52

NJ-WRD WELL NO. 29-0017



OCEAN COUNTY

394829074053503. Local I.D., Island Beach 3 Obs. NJ-WRD Well Number, 29-0019.

LOCATION.--Lat 39°48'29", long 74°05'35", Hydrologic Unit 02040301, in Island Beach State Park, about 6.6 mi south of main entrance, Berkeley Township.

Owner: U.S. Geological Survey.

AQUIFER.--Potomac-Raritan-Magothy aquifer system, undifferentiated, of Cretaceous age.

WELL CHARACTERISTICS.--Drilled artesian observation well, diameter 8 in, depth 2,756 ft, screened 2,736 to 2,756 ft.

INSTRUMENTATION.--Water-level extremes recorder, February 1977 to current year. Water-level recorder, November 1968 to March 1975.

DATUM.--Land-surface datum is 9.02 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Front edge of cutout in recorder housing, 5.11 ft above land-surface datum.

REMARKS.--Water level affected by tidal fluctuation.

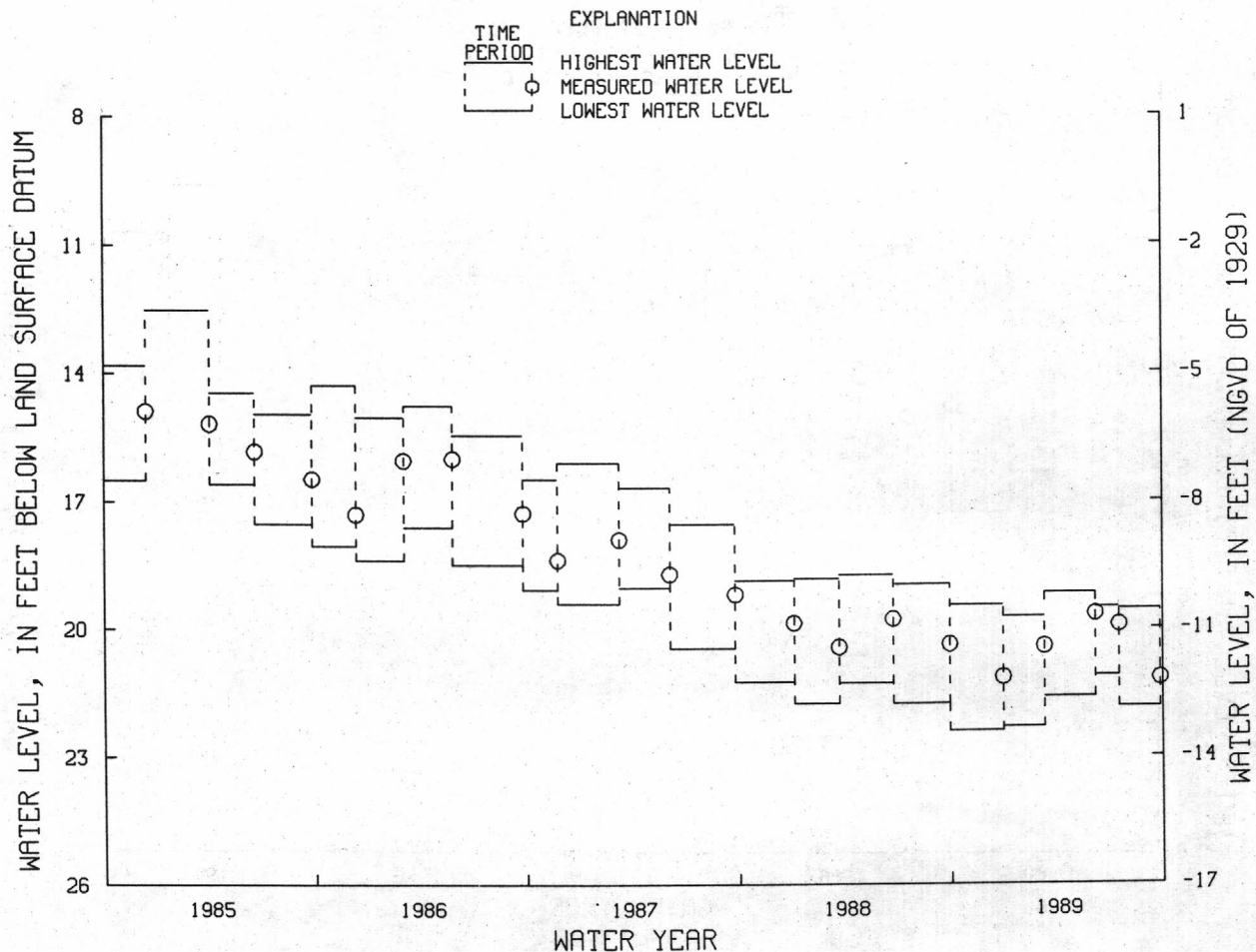
PERIOD OF RECORD.--November 1968 to March 1975, February 1977 to current year. Records for 1968 to 1975 are unpublished and are available in files of New Jersey District Office.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 5.95 ft above land-surface datum, Apr. 23, 1969; lowest, 22.40 ft below land-surface datum, between Sept. 29 and Dec. 30, 1988.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

WATER-LEVEL EXTREMES			MEASURED WATER LEVEL	
PERIOD	HIGHEST WATER LEVEL	LOWEST WATER LEVEL	DATE	WATER LEVEL
SEPT. 29, 1988 TO DEC. 30, 1988	19.45	22.40	DEC. 30, 1988	21.14
DEC. 30, 1988 TO MAR. 10, 1989	19.72	22.31	MAR. 10, 1989	20.42
MAR. 10, 1989 TO JUNE 6, 1989	19.16	21.60	JUNE 6, 1989	19.66
JUNE 6, 1989 TO JULY 17, 1989	19.50	21.11	JULY 17, 1989	19.92
JULY 17, 1989 TO SEPT. 26, 1989	19.55	21.84	SEPT. 26, 1989	21.17

NJ-WRD WELL NO. 29-0019



OCEAN COUNTY

395028074104401. Local I.D., DOE-Forked River Obs. NJ-WRD Well Number, 29-0585.

LOCATION.--Lat 39°50'28", long 74°10'44", Hydrologic Unit 02040301, at the Forked River Game Farm, Forked River, Lacey Township.

Owner: State of New Jersey.

AQUIFER.--Piney Point aquifer of Eocene age.

WELL CHARACTERISTICS.--Drilled artesian observation well, diameter 4 in, depth 422 ft, perforated casing 412 to 422 ft.

INSTRUMENTATION.--Digital water-level recorder--60-minute punch.

DATUM.--Land-surface datum is 15 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring point: Top edge of recorder shelf, 3.80 ft above land-surface datum.

REMARKS.--Water level affected by nearby pumping.

PERIOD OF RECORD.--April 1984 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 0.83 ft above land-surface datum, June 1, 1984; lowest, 1.60 ft below land-surface datum, Sept. 13, 1989.

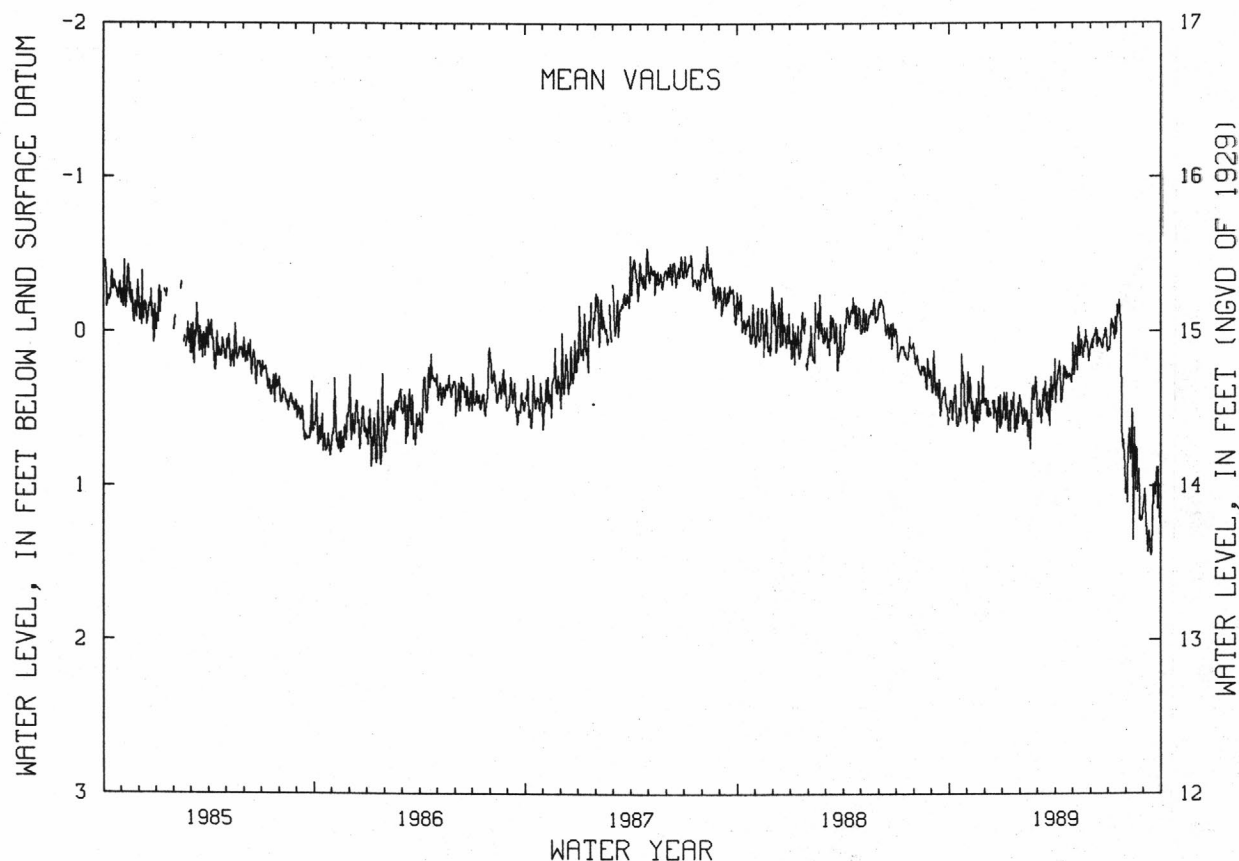
WATER LEVEL, IN FEET ABOVE (-) OR BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	.46	.29	.54	.57	.58	.44	.31	.23	.11	.07	.79	1.23
10	.38	.45	.49	.62	.58	.48	.38	.07	-.02	-.05	.75	1.29
15	.59	.58	.44	.44	.57	.32	.33	.13	.07	.02	.86	1.40
20	.58	.32	.52	.39	.58	.54	.31	.10	.10	-.20	.78	.98
25	.30	.46	.44	.63	.39	.29	.29	.07	.04	.63	1.22	1.15
EOM	.59	.44	.53	.45	.43	.18	.24	.11	.13	1.05	1.12	1.28
MEAN	.47	.45	.51	.52	.52	.44	.31	.12	.06	.18	.94	1.18

WTR YR 1989 MEAN .47 HIGH -.25 JUL 17 LOW 1.60 SEP 13

NJ-WRD WELL NO.29-0585



OCEAN COUNTY

395714074223401. Local I.D., Crammer Obs. NJ-WRD Well Number, 29-0486.

LOCATION.--Lat 39°57'14", long 74°22'34", Hydrologic Unit 02040301, about 800 ft east of Central Railroad of New Jersey, Whiting, Manchester Township.

Owner: Whiting Bible Church.

AQUIFER.--Kirkwood-Cohansey aquifer system of Miocene age.

WELL CHARACTERISTICS.--Water-table observation well, diameter 8 in, depth 69 ft, slotted steel casing, gravel packed.

INSTRUMENTATION.--Digital water-level recorder--60-minute punch.

DATUM.--Land-surface datum is 179.05 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top of 8-inch coupling, 0.90 ft above land-surface datum.

REMARKS.--Originally a dug well in which slotted casing was installed on March 31, 1966, and the well deepened from 60 to 69 ft.

PERIOD OF RECORD.--May 1952 to current year. Records for 1952 to 1962 are unpublished and are available in files of New Jersey District office.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 47.80 ft below land-surface datum, June 9-14, 20-29, 1973; lowest, 58.02 ft below land surface datum, Nov. 21,22,29,30, Dec. 1-8, 1985 and Mar. 25,26, 1989. Well was dry, November 1957 to February 1958, December 1965, before deepening.

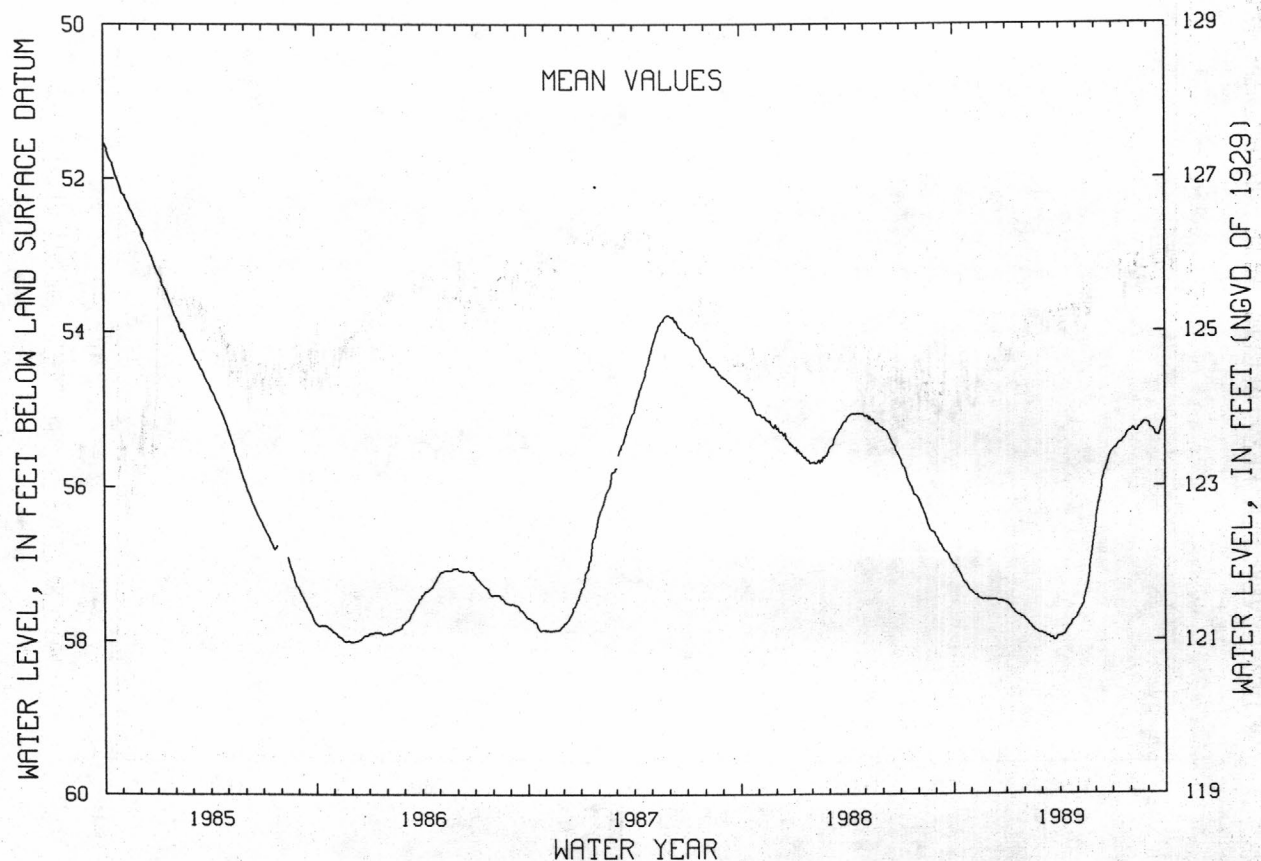
WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	57.03	57.38	57.47	57.54	57.75	57.91	57.94	57.62	56.31	55.52	55.27	55.26
10	57.09	57.41	57.47	57.59	57.80	57.94	57.91	57.54	56.10	55.47	55.30	55.28
15	57.18	57.44	57.47	57.63	57.84	57.94	57.85	57.41	55.89	55.44	55.27	55.34
20	57.25	57.46	57.48	57.67	57.87	57.97	57.80	57.23	55.75	55.40	55.23	55.35
25	57.29	57.47	57.49	57.69	57.90	58.00	57.74	56.94	55.64	55.34	55.18	55.23
EOB	57.36	57.47	57.51	57.72	57.90	57.94	57.69	56.59	55.55	55.30	55.18	55.14
MEAN	57.18	57.43	57.48	57.62	57.83	57.95	57.84	57.28	55.94	55.43	55.24	55.27

WTR YR 1989 MEAN 56.87 HIGH 55.13 SEP 30 LOW 58.02 MAR 25,26

NJ-WRD WELL NO.29-0486



OCEAN COUNTY

395930074142101. Local I.D., Toms River Chem 84 Obs. NJ-WRD Well Number, 29-0085.

LOCATION.--Lat 39°59'29", long 74°14'20", Hydrologic Unit 02040301, at Toms River Plant, Ciba-Geigy Corporation, Dover Township.

Owner: Ciba-Geigy Corporation.

AQUIFER.--Potomac-Raritan-Magothy aquifer system, undifferentiated, of Cretaceous age.

WELL CHARACTERISTICS.--Drilled artesian observation well, diameter 8 in, depth 1,480 ft, screened 1,460 to 1,480 ft.

INSTRUMENTATION.--Digital water-level recorder--60-minute punch.

DATUM.--Land-surface datum is 66.71 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top edge of recorder shelf, 2.70 ft above land-surface datum.

REMARKS.--Missing record from January 27 to March 27 was due to recorder malfunction.

PERIOD OF RECORD.--July 1968 to July 1975, March 1977 to current year. Records for 1968 to 1975 are unpublished and are available in files of New Jersey District Office.

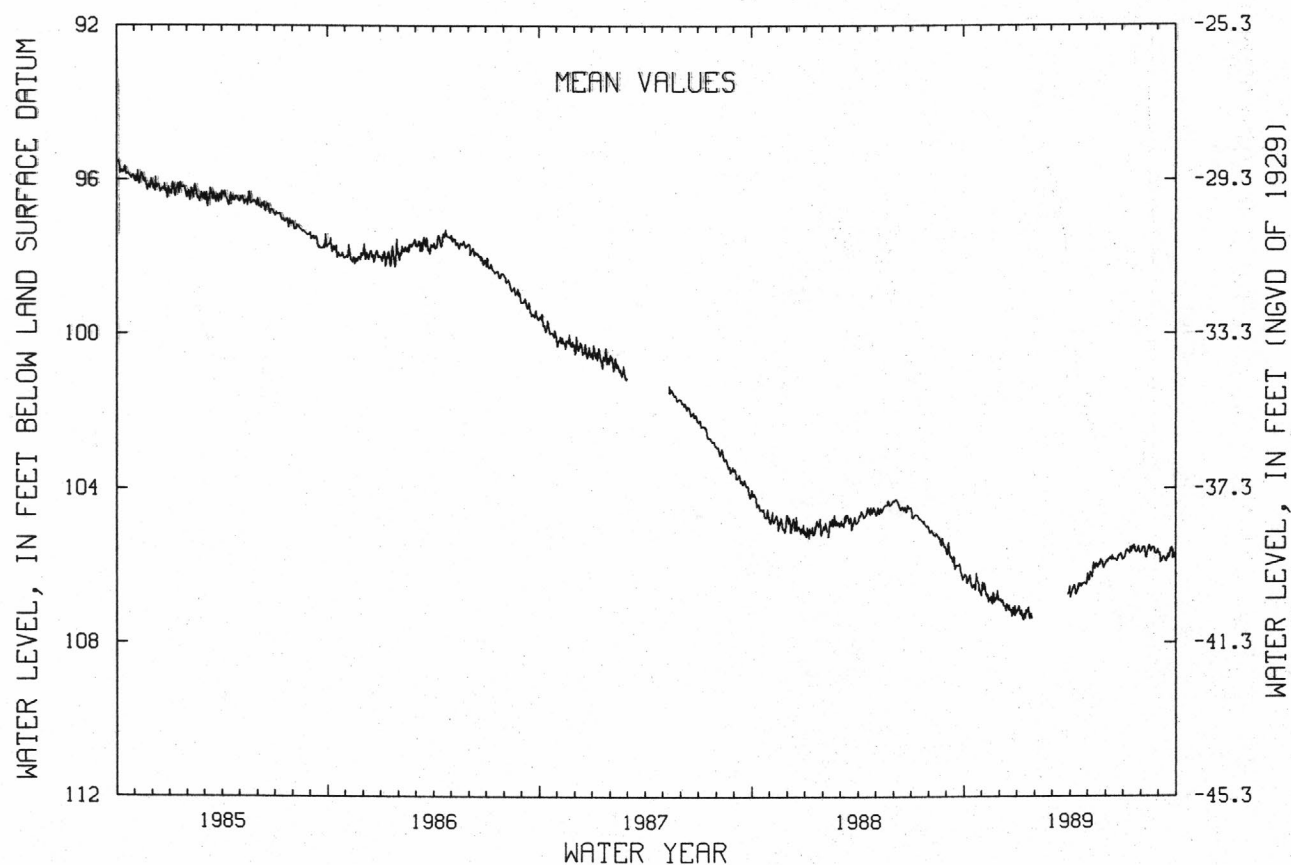
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 62.32 ft below land-surface datum, July 19, 1968 and Feb. 9, 1969; lowest, 107.45 ft below land-surface datum, Jan. 11, 1989.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	106.30	106.44	106.97	107.25	---	---	106.65	106.32	105.89	105.75	105.49	105.90
10	106.27	106.71	106.99	107.37	---	---	106.67	106.08	105.73	105.58	105.79	105.74
15	106.51	106.90	107.01	107.15	---	---	106.58	106.03	105.82	105.63	105.46	105.77
20	106.61	106.69	107.15	107.07	---	---	106.53	105.95	105.85	105.45	105.55	105.64
25	106.40	106.86	107.08	107.36	---	---	106.44	105.88	105.73	105.65	105.65	105.80
EOM	106.76	106.86	107.18	---	---	106.52	106.42	105.94	105.83	105.65	105.66	105.75
MEAN	106.44	106.75	107.07	107.23	---	---	106.55	106.05	105.80	105.62	105.58	105.74
WTR YR 1989	MEAN 106.27 HIGH 105.39 JUL 17 LOW 107.45 JAN 11											

NJ-WRD WELL NO.29-0085



OCEAN COUNTY

400210074031001. Local I.D., Mantoloking 6 Obs. NJ-WRD Well Number, 29-0503.

LOCATION.--Lat 40°02'10", Long 74°03'10", Hydrologic Unit 02040301, at the Bay Avenue water treatment plant, Mantoloking.

Owner: New Jersey - American Water Company.

AQUIFER.--Englishtown aquifer system of Cretaceous age.

WELL CHARACTERISTICS.--Drilled artesian observation well, diameter 8 in, depth 906 ft, screened 845 to 906 ft.

INSTRUMENTATION.--Digital water-level recorder--60-minute punch.

DATUM.--Land-surface datum is 5 ft above National Geodetic Vertical Datum of 1929, from topographic map.

Measuring point: Top edge of recorder shelf, 2.40 ft above land-surface datum.

REMARKS.--Water level affected by tidal fluctuation and nearby pumping.

PERIOD OF RECORD.--May 1984 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 185.32 ft below land-surface datum, Jun. 3,4, 1988; lowest, 207.49 ft below land-surface datum, Oct. 31, 1987.

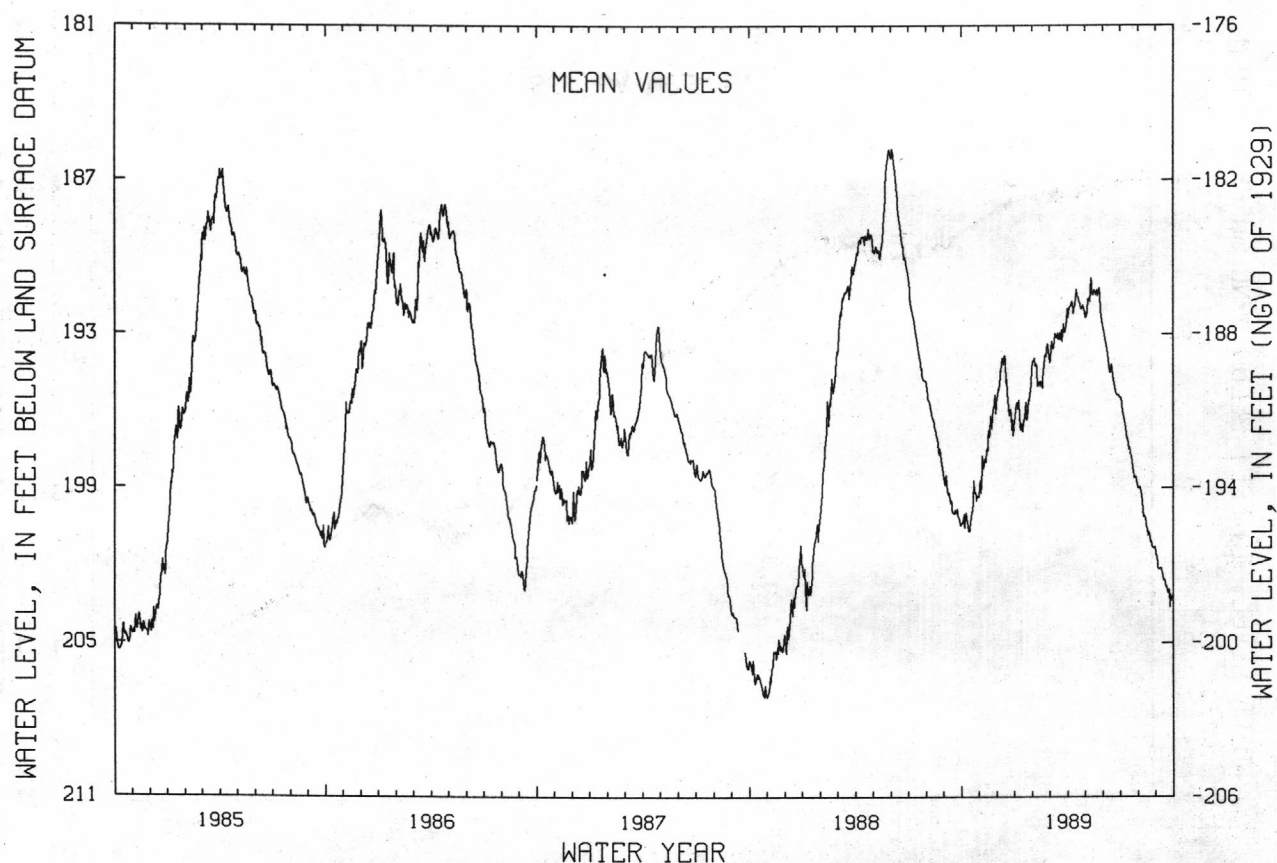
WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	200.01	198.13	194.97	195.92	194.25	193.30	191.94	192.13	193.19	195.99	199.02	202.09
10	200.17	197.87	193.95	196.60	195.02	193.06	192.08	191.29	193.82	196.67	200.12	202.09
15	200.64	197.54	194.09	196.39	194.92	192.96	191.58	191.48	194.29	197.31	200.44	202.54
20	199.85	196.19	195.57	195.66	194.30	193.07	191.73	191.36	194.96	197.77	200.76	202.80
25	199.19	195.88	196.14	195.61	193.41	192.60	192.06	191.27	195.37	198.59	201.25	203.53
EOM	199.34	195.77	196.43	194.16	193.82	192.01	192.16	192.68	195.48	198.99	201.53	203.11
MEAN	199.94	197.20	195.26	195.87	194.34	193.15	191.88	191.65	194.36	197.35	200.36	202.59

WTR YR 1989 MEAN 196.17 HIGH 190.50 MAY 11 LOW 203.94 SEP 24

NJ-WRD WELL NO.29-0503



OCEAN COUNTY

400416074270101. Local I.D., Colliers Mills TW 1 Obs. NJ-WRD Well Number, 29-0138.

LOCATION.--Lat 40°04'14", long 74°27'02", Hydrologic Unit 02040301, along western shore of Colliers Mills Pond, Jackson Township.

Owner: U.S. Geological Survey.

AQUIFER.--Englishtown aquifer system of Cretaceous age.

WELL CHARACTERISTICS.--Drilled artesian observation well, diameter 6 in, depth 427 ft, screened 417 to 427 ft.

INSTRUMENTATION.--Digital water-level recorder--60-minute punch.

DATUM.--Land-surface datum is 136.52 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top of 6 inch coupling, 2.20 ft above land-surface datum.

PERIOD OF RECORD.--February 1964 to July 1975, March 1977 to current year. Records for 1964 to 1975 are unpublished and are available in files of New Jersey District Office.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 52.02 ft below land-surface datum, Feb. 19, 1964; lowest, 76.76 ft below land-surface datum, Oct. 20, 1988.

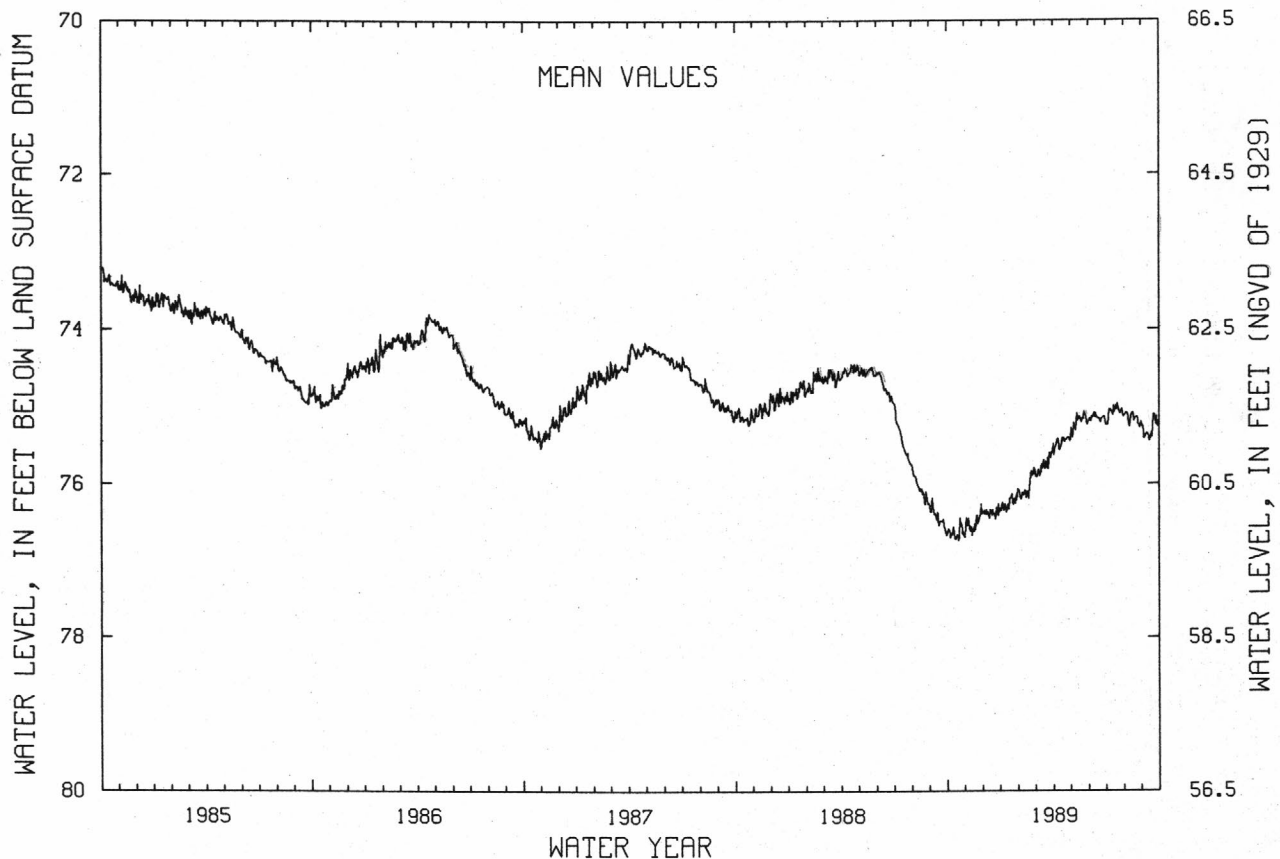
WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	76.64	76.44	76.39	76.34	76.18	75.85	75.53	75.36	75.20	75.15	75.08	75.42
10	76.60	76.55	76.37	76.37	76.13	75.85	75.52	75.19	75.08	75.06	75.27	75.35
15	76.70	76.62	76.34	76.19	76.10	75.69	75.48	75.20	75.15	75.08	75.10	75.39
20	76.73	76.41	76.39	76.13	76.05	75.79	75.46	75.17	75.20	74.97	75.15	75.11
25	76.54	76.45	76.31	76.26	75.87	75.60	75.41	75.12	75.15	75.10	75.23	75.26
EOM	76.69	76.37	76.32	76.09	75.85	75.48	75.43	75.20	75.24	75.13	75.26	75.26
MEAN	76.64	76.50	76.37	76.24	76.05	75.76	75.47	75.21	75.16	75.09	75.16	75.30

WTR YR 1989 MEAN 75.74 HIGH 74.94 JUL 20 LOW 76.76 OCT 20

NJ-WRD WELL NO.29-0138



OCEAN COUNTY

400416074270102. Local I.D., Colliers Mills TW 2 Obs. NJ-WRD Well Number, 29-0139.

LOCATION.--Lat 40°04'14", long 74°27'02", Hydrologic Unit 02040301, along western shore of Colliers Mills Pond, Jackson Township.

Owner: U.S. Geological Survey.

AQUIFER.--Vincetown Formation of Paleocene age.

WELL CHARACTERISTICS.--Drilled artesian observation well, diameter 6 in, depth 171 ft, screened 161 to 171 ft.

INSTRUMENTATION.--Water-level extremes recorder, October 1976 to current year. Water-level recorder, January 1964 to August 1975.

DATUM.--Land-surface datum is 135.76 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Front edge of cutout in recorder housing, 3.25 ft above land-surface datum.

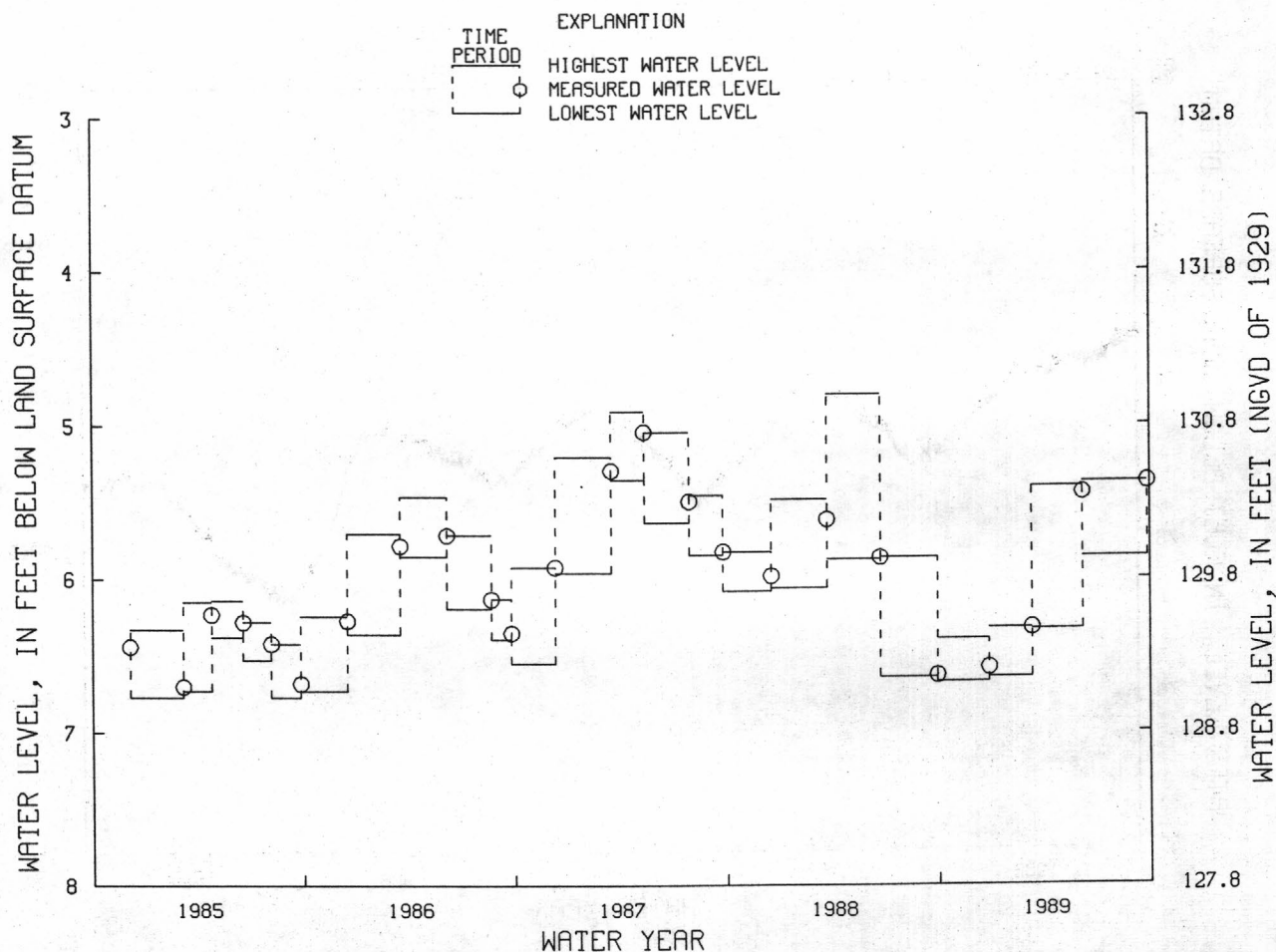
PERIOD OF RECORD.--January 1964 to August 1975, October 1976 to current year. Records for 1964 to 1981 are unpublished and are available in files of New Jersey District Office.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 3.92 ft below land-surface datum, between Apr. 3 and July 11, 1984; lowest, 6.77 ft below land-surface datum, between Dec. 4, 1984 and Mar. 6, 1985 and between Aug. 6 and Sept. 26, 1985.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

WATER-LEVEL EXTREMES			MEASURED WATER LEVEL	
PERIOD	HIGHEST WATER LEVEL	LOWEST WATER LEVEL	DATE	WATER LEVEL
SEPT. 29, 1988 TO DEC. 27, 1988	6.39	6.67	DEC. 27, 1988	6.58
DEC. 27, 1988 TO MAR. 10, 1989	6.32	6.64	MAR. 10, 1989	6.32
MAR. 10, 1989 TO JUNE 6, 1989	5.40	6.33	JUNE 6, 1989	5.44
JUNE 6, 1989 TO SEPT. 26, 1989	5.37	5.86	SEPT. 26, 1989	5.37

NJ-WRD WELL NO. 29-0139



OCEAN COUNTY

400416074270103. Local I.D., Colliers Mills TW 3 Obs. NJ-WRD Well Number, 29-0140.

LOCATION.--Lat 40°04'14", long 74°27'02", Hydrologic Unit 02040301, along western shore of Colliers Mills Pond, Jackson Township.

Owner: U.S. Geological Survey.

AQUIFER.--Wenonah-Mount Laurel aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled artesian observation well, diameter 6 in, depth 267 ft, screened 257 to 267 ft.

INSTRUMENTATION.--Water-level extremes recorder, October 1976 to current year. Water-level recorder, January 1964 to July 1975.

DATUM.--Land-surface datum is 135.15 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Front edge of cutout in recorder housing, 3.49 ft above land-surface datum.

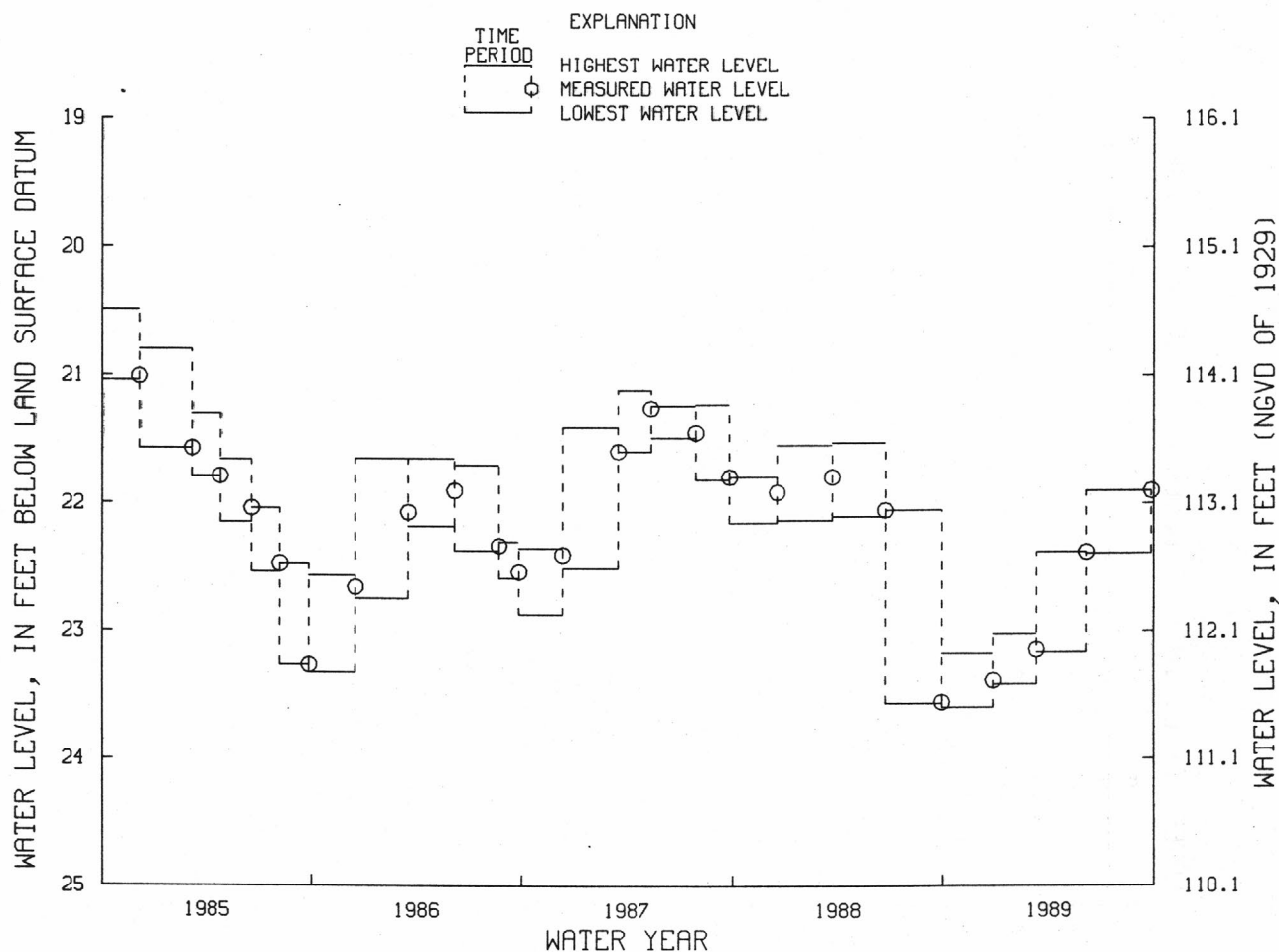
PERIOD OF RECORD.--January 1964 to July 1975, October 1976 to current year. Records for 1964 to 1975 are unpublished and are available in files of New Jersey District Office.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 15.72 ft below land-surface datum, May 9, 1964; lowest, 23.59 ft below land-surface datum, between Sept. 29 and Dec. 27, 1988.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

WATER-LEVEL EXTREMES				MEASURED WATER LEVEL	
PERIOD	HIGHEST WATER LEVEL	LOWEST WATER LEVEL	DATE	WATER LEVEL	
SEPT. 29, 1988 TO DEC. 27, 1988	23.17	23.59	DEC. 27, 1988	23.38	
DEC. 27, 1988 TO MAR. 10, 1989	23.02	23.41	MAR. 10, 1989	23.14	
MAR. 10, 1989 TO JUNE 6, 1989	22.38	23.16	JUNE 6, 1989	22.38	
JUNE 6, 1989 TO SEPT. 26, 1989	21.90	22.39	SEPT. 26, 1989	21.90	

NJ-WRD WELL NO. 29-0140



OCEAN COUNTY

400416074270104. Local I.D., Colliers Mills TW 4 Obs. NJ-WRD Well Number, 29-0141.

LOCATION.--Lat 40°04'14", long 74°27'02", Hydrologic Unit 02040301, along western shore of Colliers Mills Pond, Jackson Township.

Owner: U.S. Geological Survey.

AQUIFER.--Kirkwood-Cohansey aquifer system of Miocene age.

WELL CHARACTERISTICS.--Drilled water-table observation well, diameter 6 in, depth 71 ft, gravel-filled hole 46 to 71 ft.

INSTRUMENTATION.--Water-level extremes recorder, October 1976 to current year. Water-level recorder, March 1964 to April 1975.

DATUM.--Land-surface datum is 135.31 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Front edge of cutout in recorder housing, 2.86 ft above land-surface datum.

REMARKS.--Water level affected by stage of Colliers Mills Pond.

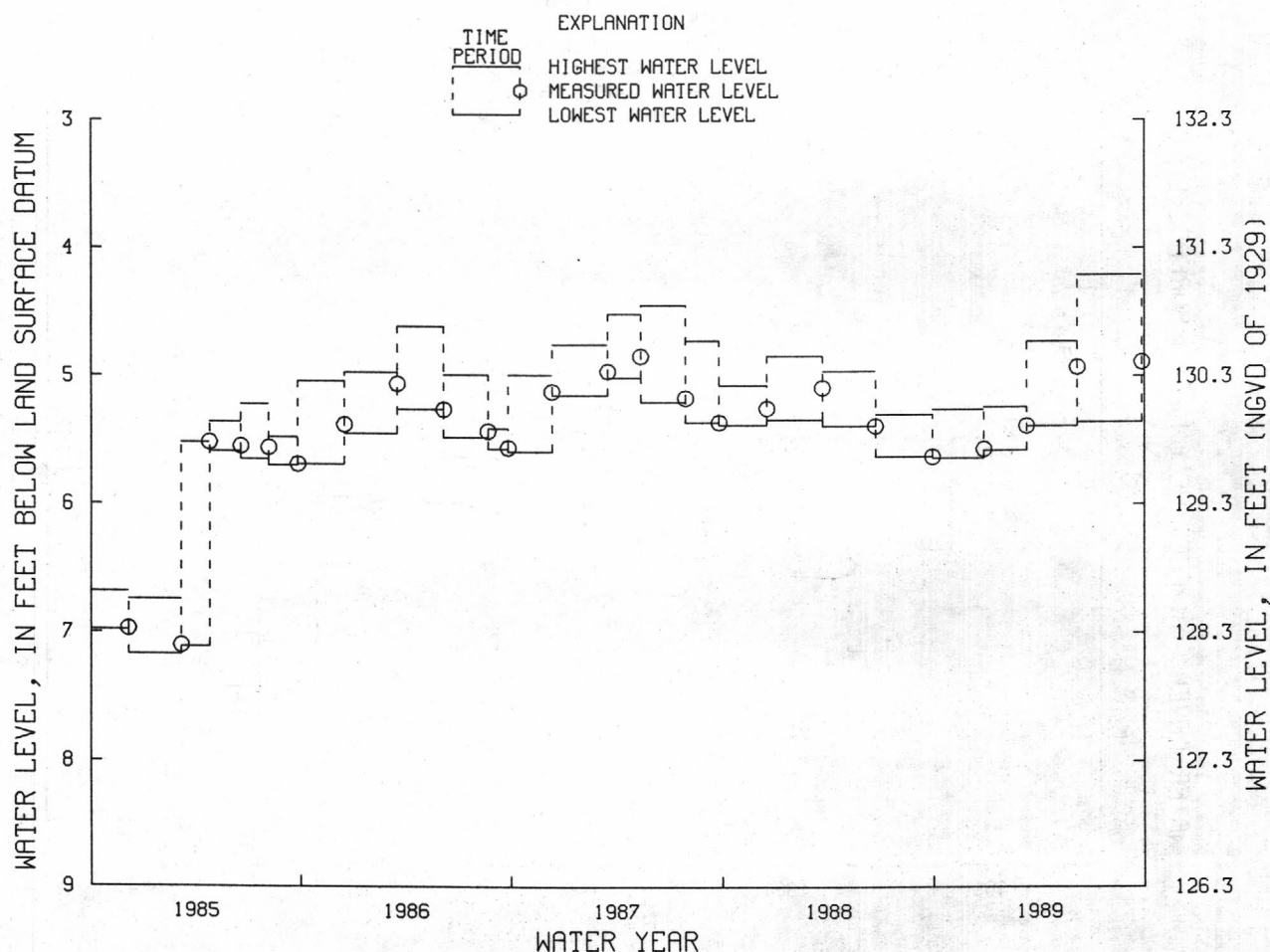
PERIOD OF RECORD.--March 1964 to April 1975, October 1976 to current year. Records for 1964 to 1981 are unpublished and are available in files of New Jersey District Office.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 3.68 ft below land-surface datum, between Apr. 3 and July 11, 1984; lowest, 7.17 ft below land-surface datum, between Dec. 4, 1984 and Mar. 6, 1985.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

WATER-LEVEL EXTREMES			MEASURED WATER LEVEL	
PERIOD	HIGHEST WATER LEVEL	LOWEST WATER LEVEL	DATE	WATER LEVEL
SEPT. 29, 1988 TO DEC. 27, 1988	5.26	5.64	DEC. 27, 1988	5.57
DEC. 27, 1988 TO MAR. 10, 1989	5.24	5.58	MAR. 10, 1989	5.39
MAR. 10, 1989 TO JUNE 6, 1989	4.73	5.39	JUNE 6, 1989	4.93
JUNE 6, 1989 TO SEPT. 26, 1989	4.21	5.36	SEPT. 26, 1989	4.89

NJ-WRD WELL NO. 29-0141



UNION COUNTY

404106074171901. Local I.D., Union County Park Obs. NJ-WRD Well Number, 39-0119.

LOCATION---Lat 40°41'06", long 74°17'19", Hydrologic Unit 02030104, at Galloping Hill Golf Course, Kenilworth.

Owner: Union County Park Commission.

AQUIFER---Passaic Formation of Jurassic-Triassic age.

WELL CHARACTERISTICS---Drilled artesian observation well, diameter 6 in, length of casing unknown, depth 290 ft, open hole.

INSTRUMENTATION---Digital water-level recorder--60-minute punch.

DATUM---Land-surface datum is 69.00 ft above National Geodetic Vertical Datum of 1929.

Measuring point: Top edge of recorder shelf, 2.30 ft above land-surface datum.

REMARKS---Water level affected by nearby pumping.

PERIOD OF RECORD---June 1943 to May 1975, July 1984 to current year. Periodic manual measurements, August 1976 to April 1984. Records for 1975 to 1983 are unpublished and are available in files of New Jersey District Office.

EXTREMES FOR PERIOD OF RECORD---Highest water level, 3.06 ft below land-surface datum, June 2, 1952; lowest, 16.05 ft below land-surface datum, June 29, 1966.

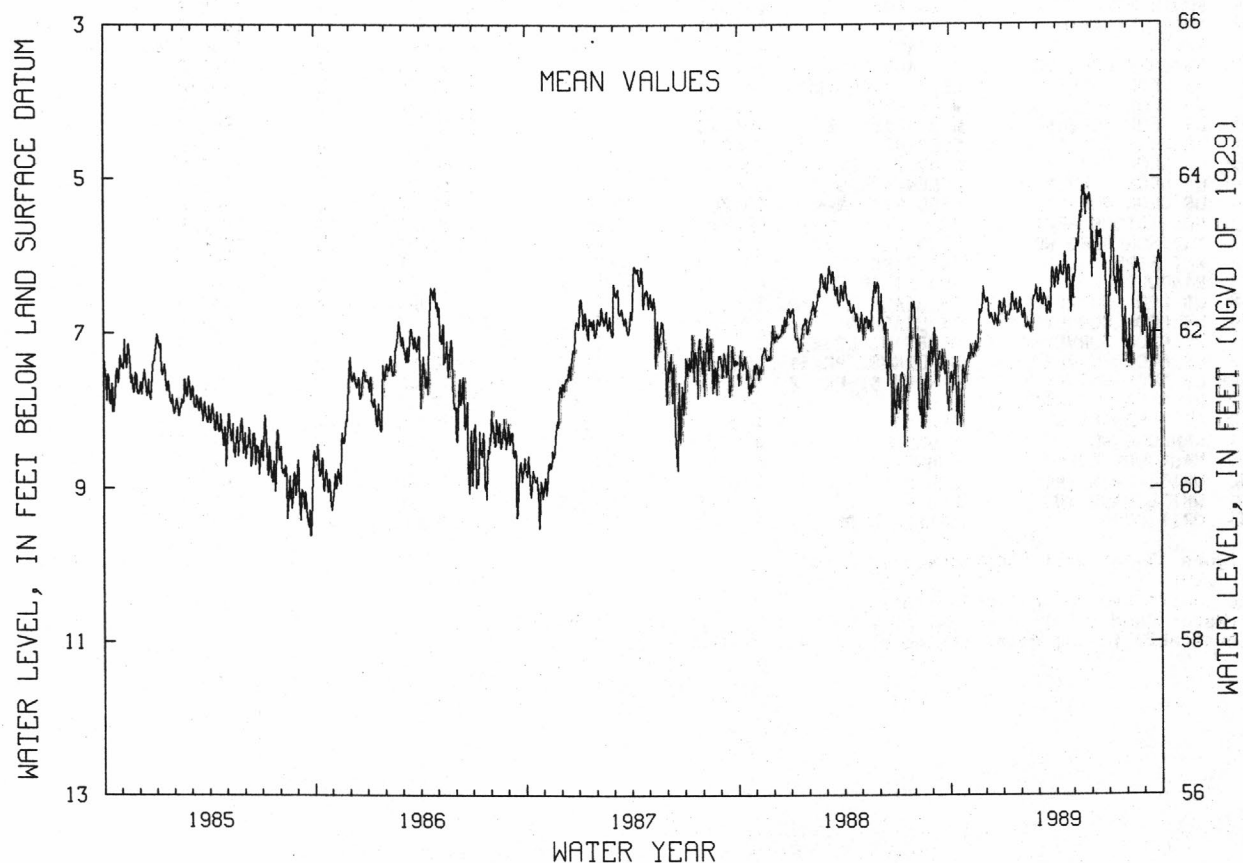
WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	7.62	7.27	6.57	6.82	6.73	6.45	6.39	6.25	5.95	6.32	7.41	6.79
10	7.31	7.28	6.81	---	6.94	6.64	6.11	5.85	5.74	6.24	7.43	6.89
15	7.75	7.21	6.87	6.53	6.94	6.62	6.23	5.53	5.71	6.52	6.24	7.15
20	8.22	6.95	6.83	6.63	6.78	6.61	6.43	5.11	6.04	6.65	6.05	6.61
25	7.53	6.66	6.60	6.75	6.52	6.27	6.21	5.29	5.99	6.76	6.48	5.99
EOM	7.35	6.54	6.72	6.60	6.54	6.32	6.30	5.39	6.94	7.11	6.66	6.42
MEAN	7.67	7.03	6.74	6.67	6.76	6.54	6.26	5.58	6.04	6.41	6.69	6.79

WTR YR 1989 MEAN 6.60 HIGH 5.01 MAY 18 LOW 8.67 OCT 20

NJ-WRD WELL NO.39-0119



GROUND-WATER LEVELS - SECONDARY OBSERVATION WELLS
OTHER SITES FOR WHICH DATA ARE AVAILABLE

NJ-WRD WELL NUMBER	SITE OWNER	LOCAL IDENTIFIER	LATITUDE	LONGITUDE	AQUIFER UNIT	WC	PERIOD OF RECORD
01-387	RAMBERG, RALPH	AMATOL 8	393557	744114	121CKKD	W	1961-1986
01-496	US GEOL SURVEY	USGS 4-H-2	394029	743957	121CKKD	W	1963-1986
01-542	US GEOL SURVEY	WHARTON 2G	394028	744000	121CKKD	W	1960-1986
01-545	US GEOL SURVEY	WHARTON 11	394058	744022	121CKKD	W	1957-1986
01-775	ATLANTIC CITY MUA	FAA INTERMED	392639	743232	121CKKD	W	1985-P
01-776	ATLANTIC CITY MUA	FAA SHALLOW	392639	743232	121CKKD	W	1985-P
05-029	US GEOL SURVEY	OSWEGO LAKE 1	394208	742645	121CKKD	W	1962-1986
05-030	US GEOL SURVEY	OSWEGO LAKE 2	394208	742645	121CKKD	W	1962-1986
05-407	US GEOL SURVEY	ATSION 1	394422	744309	124PNPN	A	1963-P
05-408	US GEOL SURVEY	ATSION 2	394422	744309	121CKKD	W	1963-P
05-409	US GEOL SURVEY	ATSION 3	394422	744309	121CKKD	W	1963-P
05-570	US GEOL SURVEY	MOUNT	394106	743623	121CKKD	W	1955-P
05-628	US GEOL SURVEY	PENN SF SHALLOW	394452	742819	121CKKD	W	1936-P
05-630	US GEOL SURVEY	PENN SF DEEP	394513	742806	121CKKD	W	1963-P
05-676	US GEOL SURVEY	COYLE AIRPORT	394914	742546	124PNPN	A	1962-P
09-011	CAPE MAY CITY WD	CMCWD 1 OBS	385612	745457	121CNSY	A	1967-1986
09-048	US GEOL SURVEY	CANAL 5	385748	745533	121CNSY	A	1957-P
09-080	US GEOL SURVEY	CAPE MAY 42CC	390213	745056	121CNSY	A	1957-P
09-081	US GEOL SURVEY	CAPE MAY 23HB	390211	745055	112HLBC	W	1957-P
13-013	COMMONWEALTH WC	CANOE BROOK 30	404452	742116	112SFDF	U	1950-P
13-014	EAST ORANGE WD	NEUTRAL ZONE	404454	742021	112SFDF	U	1926-P
13-017	WALSH BROS	BALLENTINE 8	404401	740834	227PSSC	A	1949-P
21-088	US GEOL SURVEY	HONEYBRANCH 10	402128	744613	227PSSC	W	1968-P
23-159	DUHERNAL WC	DUHERNAL OBS 5	402353	742152	211ODBG	W	1939-1986
23-180	DUHERNAL WC	DUHERNAL OBS 1	402438	742129	211ODBG	W	1938-1986
23-181	PERTH AMBOY WD	RUNYON 123	402442	742136	211ODBG	W	1955-1986
23-194	PERTH AMBOY WD	RUNYON 1	402536	742018	211FRNG	A	1934-P
23-265	CHEVRON OIL CO	11	403211	741612	211FRNG	W	1950-1986
23-270	AMER CYANAMID	TEST 2	403231	741616	211FRNG	W	1950-1986
23-273	NJ WATER POLICY	PLAINSBO RO POND	401932	743529	211MRPAM	U	1970-P
23-291	MONROE TWP MUA	OBS 1-1961	402109	743013	211FRNG	A	1965-P
23-292	MONROE TWP MUA	OBS 2-1961	402109	743012	211ODBG	W	1961-P
23-306	PHELPS DODGE CO	PHELPS DODGE 3	402147	742847	211FRNG	A	1969-1987
23-344	SAYREVILLE WD	SWD 2	402558	742013	211ODBG	W	1968-P
23-351	SAYREVILLE WD	SWD 1	402605	741959	211ODBG	W	1968-P
23-365	DUHERNAL WC	DUH SAY 4	402633	742120	211FRNG	A	1932-P
23-433	NJ WATER POLICY	SO RIVER 4	402555	742133	211ODBG	W	1968-1986
23-439	SOUTH RIVER WD	SRWD 2R	402633	742200	211FRNG	A	1968-P
23-482	AMER CYANAMID	TEST 1	403242	741617	211FRNG	A	1950-P
23-516	NOVAK, W	HULSART	402123	741849	211EGLS	W	1936-1984
25-250	GORDONS CRNR WC	VILLAGE 215	401918	741529	211EGLS	A	1971-P
27-001	US GEOL SURVEY	RECREATION FLD	404432	742252	112SFDF	U	1967-P
27-002	US GEOL SURVEY	W B DRIVER 1	404738	742406	112SFDF	U	1966-P
27-003	US GEOL SURVEY	W B DRIVER 2	404748	742419	112SFDF	U	1966-P
27-004	US GEOL SURVEY	CLEMENS	404816	742359	112SFDF	U	1966-P
27-005	US GEOL SURVEY	SANDOZ CHEM CO	404826	742347	112SFDF	U	1966-P
27-006	US GEOL SURVEY	GREEN ACRES	404937	742200	112SFDF	U	1967-P
27-014	US GEOL SURVEY	ESSO SIX INCH	404705	742452	112SFDF	U	1967-P
27-015	MORRISTOWN ARPT	T2	404743	742522	112SFDF	U	1960-P
27-017	MADISON BORO WD	MBWD 4	404508	742402	112SFDF	U	1958-P
27-022	INT PIPE	INT PIPE	405209	742638	112SFDF	U	1963-P
27-023	RANDOLPH WD	RWD MT FR 2	404921	743356	400PCMB	U	1964-P
29-018	US GEOL SURVEY	IS BEACH 2	394829	740535	124PNPN	A	1962-P
29-020	US GEOL SURVEY	IS BEACH 4	394829	740535	121CKKD	W	1962-P
29-425	US GEOL SURVEY	WEBBS MILLS 2	395322	742252	124PNPN	A	1962-P
29-513	US GEOL SURVEY	GARDEN ST PKY 1	394744	741418	121CKKD	W	1962-P
29-514	US GEOL SURVEY	GARDEN ST PKY 2	394744	741418	121CKKD	W	1962-P
29-530	PT PLEASANT WD	PPWD 6	400454	740413	211EGLS	A	1988-P
29-532	PT PLEASANT WD	PPWD 3	400459	740359	211EGLS	A	1986-1988
31-011	WANAQUE WD	HASKELL	410209	741708	112SFDF	W	1965-1982
39-058	MAGRUDER COLOR	SCHWEITZER	404113	741216	227PSSC	A	1956-P
39-102	WHITE LABS INC	LAB 3	404027	741644	227PSSC	A	1952-P
39-115	WHITE LABS INC	LAB 4	404043	741618	227PSSC	A	1952-P
39-133	ORIT CORP	HATFIELD OBS	403726	741623	227PSSC	A	1959-1987

See figure 13 for well locations.

P - Present

Aquifer unit: see definition of terms

WC - (Water Condition): A-Artesian, W-Water table, U-Undetermined

Data available in the files of the New Jersey District Office.

QUALITY OF GROUND WATER - SALTWATER MONITORING NETWORK
WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
ATLANTIC COUNTY

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NJ-WRD WELL NUMBER	SITE OWNER	LOCAL IDENTIFIER	LATITUDE	LONGITUDE	ELEV. LAND SURF. (FT. NGVD)	SCREENED INTERVAL (FT.)	AQUIFER UNIT
01-367	LONGPORT WD	LONGPORT 2	391859	743122	10	750 - 800	122KRKDL
01-582	NJ WATER CO	NJWC 5	391906	743629	15	79 - 99	121CKKD
01-589	NJ WATER CO	NJWC 9	391924	743550	19	129 - 159	121CKKD
01-370	MARGATE CITY WD	MCWD 6	391928	743055	10	748 - 798	122KRKDL
01-353	NJ WATER CO	SHORE-KIRKLIN	392001	743522	10	56 - 71	121CKKD
01-598	VENTNOR CITY WD	VCWD 9	392030	742852	8	740 - 800	122KRKDL
01-362	NJ WATER CO	NJWC 8	392119	743424	20	96 - 146	121CKKD
01-682	RESORTS INTRNTL	1-1980	392134	742521	8	840*	122KRKDL
01-549	NJ WATER CO	SHORE-MILL RD	392157	743317	25	117 - 152	121CKKD
01-150	NJ WATER CO	MARTIN AVE 13	392428	743328	50	186 - 222	121CKKD
01-041	BRIGANTINE WD	BRIG WD 1	392431	742153	9	736 - 829	122KRKDL
01-013	NJ WATER CO	SHORE-ABSECON1	392554	743027	22	178 - 205	121CKKD

NJ-WRD WELL NUMBER	SITE OWNER	LOCAL IDENTIFIER	DATE OF SAMPLE	TEMPER- ATURE (DEG C)	SPE- CIFIC CONDUCT- -ANCE (μs/cm)	PH (UNITS)	CHLORIDE DIS- SOLVED (MG/L AS CL)
01-367	LONGPORT WD	LONGPORT 2	8/ 7/1989	19.5	155	7.3	6.8
01-582	NJ WATER CO	NJWC 5	8/14/1989	15.0	125	5.1	20
01-589	NJ WATER CO	NJWC 9	8/14/1989	14.5	515	4.6	170
01-370	MARGATE CITY WD	MCWD 6	8/ 7/1989	19.0	150	7.4	7.2
01-353	NJ WATER CO	SHORE-KIRKLIN	8/14/1989	14.0	125	5.2	18
01-598	VENTNOR CITY WD	VCWD 9	8/ 7/1989	19.0	145	7.5	5.1
01-362	NJ WATER CO	NJWC 8	8/14/1989	14.5	144	5.1	18
01-682	RESORTS INTRNTL	1-1980	8/ 7/1989	19.0	160	7.4	7.4
01-549	NJ WATER CO	SHORE-MILL RD	8/14/1989	---	125	5.1	15
01-150	NJ WATER CO	MARTIN AVE 13	8/14/1989	14.0	70	5.7	6.2
01-041	BRIGANTINE WD	BRIG WD 1	8/ 7/1989	18.5	123	7.5	3.5
01-013	NJ WATER CO	SHORE-ABSECON1	8/14/1989	14.0	60	4.9	6.2

* Total depth of well.

Aquifer unit:

- 121CKKD - Kirkwood-Cohansey aquifer system
- 122KRKDL - Atlantic City 800-foot sand of the Kirkwood Formation

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

BERGEN COUNTY

NJ-WRD WELL NUMBER	SITE OWNER	LOCAL IDENTIFIER	LATITUDE	LONGITUDE	ELEV. LAND SURF. (FT. NGVD)	OPEN OR SCREENED INTERVAL (FT.)	AQUIFER UNIT				
030203 030236	SIKA CHEMICAL COMPANY BOY SCOUTS OF AMERICA	SIKA 1 CAMP YAW PAW 2	404819 410508	0740639 0741339	55 780	25-302 21- 86	227BRCK 400PCMB				
NJ-WRD WELL NUMBER	DATE	TEMPER- ATURE WATER (DEG C)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	HARD- NESS TOTAL (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)	BICAR- BONATE IT-FLD (MG/L AS HCO3)	CAR- BONATE IT-FLD (MG/L AS CO3)
030203 030236	01-10-89 09-28-89	13.0 10.5	1940 74	7.2 6.5	-- 35	-- 12	-- 1.1	-- 3.2	-- 0.6	-- 33	-- <0.1
NJ-WRD WELL NUMBER	DATE	ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N)
030203 030236	01-10-89 09-28-89	-- 27	-- 10	-- 1.2	-- 1.1	-- 13	-- 59	-- <0.010	-- <0.10	-- 0.01	-- 0.40
NJ-WRD WELL NUMBER	DATE	PHOS- PHOROUS DIS- SOLVED (MG/L AS P)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
030203 030236	01-10-89 09-28-89	-- <0.01	-- <0.01	-- 50	-- <1	-- <1	-- <1	-- 3	-- 150	-- 2	-- 3
NJ-WRD WELL NUMBER	DATE	MERCURY DIS- SOLVED (UG/L AS HG)	ZINC, DIS- SOLVED (UG/L AS ZN)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	PHENOLS TOTAL (UG/L)	DI- CHLORO- BROMO- METHANE TOTAL (UG/L)	CARBON- TETRA- CHLO- RIDE TOTAL (UG/L)	1,2-DI- CHLORO- ETHANE TOTAL (UG/L)	BROMO- FORM TOTAL (UG/L)	CHLORO- DI- BROMO- METHANE TOTAL (UG/L)	CHLORO- FORM TOTAL (UG/L)
030203 030236	01-10-89 09-28-89	-- <0.1	-- 170	-- 0.5	-- <1	<0.20 --	<0.20 --	<0.20 --	<0.20 --	<0.20 --	0.40 --
NJ-WRD WELL NUMBER	DATE	TOLUENE TOTAL (UG/L)	BENZENE TOTAL (UG/L)	CHLORO- BENZENE TOTAL (UG/L)	CHLORO- ETHANE TOTAL (UG/L)	ETHYL- BENZENE TOTAL (UG/L)	METHYL- BROMIDE TOTAL (UG/L)	METHYL- CHLO- RIDE TOTAL (UG/L)	METHYL- ENE CHLO- RIDE TOTAL (UG/L)	TETRA- CHLORO- ETHYL- ENE TOTAL (UG/L)	TRI- CHLORO- FLUORO- METHANE TOTAL (UG/L)
030203 030236	01-10-89 09-28-89	<0.20 --	<0.20 --	<0.20 --	<0.20 --	<0.20 --	<0.20 --	<0.20 --	<0.20 --	15 --	<0.20 --
NJ-WRD WELL NUMBER	DATE	1,1-DI- CHLORO- ETHANE TOTAL (UG/L)	1,1-DI- CHLORO- ETHYL- ENE TOTAL (UG/L)	1,1,1- TRI- CHLORO- ETHANE TOTAL (UG/L)	1,1,2- TRI- CHLORO- ETHANE TOTAL (UG/L)	1,1,2,2- TETRA- CHLORO- ETHANE TOTAL (UG/L)	1,2-DI- CHLORO- BENZENE TOTAL (UG/L)	1,2-DI- CHLORO- PROPANE TOTAL (UG/L)	1,2- TRANS DI- CHLORO- ETHENE TOTAL (UG/L)	1,3-DI- CHLORO- PROPENE TOTAL (UG/L)	1,3-DI- CHLORO- BENZENE TOTAL (UG/L)
030203 030236	01-10-89 09-28-89	0.20 --	0.40 --	1.0 --	<0.20 --	<0.20 --	<0.20 --	<0.20 --	2.4 --	<0.20 --	<0.20 --
NJ-WRD WELL NUMBER	DATE	1,4-DI- CHLORO- BENZENE TOTAL (UG/L)	2- CHLORO- ETHYL- VINYL- ETHER TOTAL (UG/L)	DI- CHLORO- DI- FLUORO- METHANE TOTAL (UG/L)	TRANS- 1,3-DI- CHLORO- PROPENE TOTAL (UG/L)	CIS 1,3-DI- CHLORO- PROPENE TOTAL (UG/L)	VINYL CHLO- RIDE TOTAL (UG/L)	TRI- CHLORO- ETHYL- ENE TOTAL (UG/L)	XYLENE TOTAL WATER WHOLE TOT REC (UG/L)		
030203 030236	01-10-89 09-28-89	<0.20 --	<0.20 --	<0.20 --	<0.20 --	<0.20 --	<0.20 --	3.6 --	<0.2 --	<0.2 --	

Aquifer Units:

227BRCK - Brunswick Group (undifferentiated)
400PCMB - Precambrian Erathem

QUALITY OF GROUND WATER - SALTWATER MONITORING NETWORK
WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
CAPE MAY COUNTY

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NJ-WRD WELL NUMBER	SITE OWNER	LOCAL IDENTIFIER	LATITUDE	LONGITUDE	ELEV. LAND SURF. (FT. NGVD)	SCREENED INTERVAL (FT.)	AQUIFER UNIT
09-017	US COAST GUARD	USCG 1	385651	745310	11	292 - 322	121CNSY
09-018	US COAST GUARD	USCG 2	385652	745327	11	295 - 325	121CNSY
09-132	STONE HARBOR WD	SHWD 4	390301	744545	10	830 - 880	122KRKDL
09-166	STONE HARBOR WD	SHWD 5	390351	744504	7	820 - 860	122KRKDL
09-002	AVALON WD	AVALON WD 7-71	390420	744435	5	821 - 861	122KRKDL
09-008	AVALON WD	AVALON WD 3	390621	744248	10	845 - 925	122KRKDL
09-127	SEA ISLE CITY WD	SICWD 4	390847	744200	7	742 - 830	122KRKDL
09-129	SEA ISLE CITY WD	SICWD 2	390926	744131	7	744 - 861	122KRKDL
09-106	NJ WATER CO	SHORE DIV 7	391343	743755	8	760 - 810	122KRKDL
09-124	NJ WATER CO	SHORE DIV 13	391712	743340	8	757 - 840	122KRKDL

NJ-WRD WELL NUMBER	SITE OWNER	LOCAL IDENTIFIER	DATE OF SAMPLE	TEMPER- ATURE (DEG C)	SPE- CIFIC CONDUCT- -ANCE (μ S/cm)	PH (UNITS)	SODIUM DIS- SOLVED (MG/L AS NA)	CHLORIDE DIS- SOLVED (MG/L AS CL)
09-017	US COAST GUARD	USCG 1	8/23/1989	15.5	1070	8.0	---	260
09-018	US COAST GUARD	USCG 2	8/23/1989	16.0	363	7.8	---	38
09-132	STONE HARBOR WD	SHWD 4	8/30/1989	20.0	357	8.7	65	32
09-166	STONE HARBOR WD	SHWD 5	8/30/1989	20.0	277	8.7	51	14
09-002	AVALON WD	AVALON WD 7-71	9/ 1/1989	20.0	254	8.5	44	13
09-008	AVALON WD	AVALON WD 3	9/ 1/1989	20.5	336	8.6	55	36
09-127	SEA ISLE CITY WD	SICWD 4	8/30/1989	19.5	252	8.4	33	14
09-129	SEA ISLE CITY WD	SICWD 2	8/30/1989	19.5	233	8.4	32	10
09-106	NJ WATER CO	SHORE DIV 7	9/21/1989	19.5	206	7.7	29	10
09-124	NJ WATER CO	SHORE DIV 13	9/21/1989	19.5	201	7.6	30	9.1

Aquifer unit:

121CNSY - Cohansey Sand
122KRKDL - Atlantic City 800-foot sand of the Kirkwood Formation

HUNTERDON COUNTY

[illegible]

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

HUNTERDON COUNTY

NJ-WRD WELL NUMBER	DATE	1,1-DI- CHLORO- ETHANE TOTAL (UG/L)	1,1-DI- CHLORO- ETHYLENE TOTAL (UG/L)	1,1,1- TRI- CHLORO- ETHANE TOTAL (UG/L)	1,1,2- TRI- CHLORO- ETHANE TOTAL (UG/L)	1,1,2,2 TETRA- CHLORO- ETHANE TOTAL (UG/L)	1,2-DI- CHLORO- BENZENE TOTAL (UG/L)	1,2-DI- CHLORO- PROPANE TOTAL (UG/L)	1,2- TRANS DI CHLORO- ETHENE TOTAL (UG/L)	1,3-DI- CHLORO- PROPENE TOTAL (UG/L)	1,3-DI- CHLORO- BENZENE TOTAL (UG/L)
190010	11-23-88	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
190236	09-29-89	--	--	--	--	--	--	--	--	--	--
190245	11-22-88	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
190248	09-19-89	--	--	--	--	--	--	--	--	--	--

NJ-WRD WELL NUMBER	DATE	1,4-DI- CHLORO- BENZENE TOTAL (UG/L)	2- CHLORO- ETHYL- VINYL- ETHER TOTAL (UG/L)	DI- CHLORO- DI- FLUORO- METHANE TOTAL (UG/L)	TRANS- 1,3-DI- CHLORO- PROPENE TOTAL (UG/L)	CIS 1,3-DI- CHLORO- PROPENE TOTAL (UG/L)	VINYL CHLO- RIDE TOTAL (UG/L)	TRI- CHLORO- ETHYL- ENE TOTAL (UG/L)	STYRENE TOTAL (UG/L)	XYLENE TOTAL WATER WHOLE TOT REC (UG/L)
190010	11-23-88	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.2	<0.2	<0.2
190236	09-29-89	--	--	--	--	--	--	--	--	--
190245	11-22-88	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.2	<0.2	<0.2
190248	09-19-89	--	--	--	--	--	--	--	--	--

Aquifer Unit:

400PCMB - Precambrian Erathem

QUALITY OF GROUND WATER - SALTWATER MONITORING NETWORK
WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MIDDLESEX COUNTY

NJ-WRD WELL NUMBER	SITE OWNER	LOCAL IDENTIFIER	LATITUDE	LONGITUDE	ELEV. LAND SURF. (FT. NGVD)	SCREENED INTERVAL (FT.)	AQUIFER UNIT
23-735	PERTH AMBOY WD	RUNYON 8R	402524	741940	10	70 - 85	211ODBG
23-571	PERTH AMBOY WD	PERTH AMBOY 7	402531	741932	15	67 - 82	211ODBG
23-195	PERTH AMBOY WD	PERTH AMBOY 5	402537	742001	15	50 - 80	211ODBG
23-196	PERTH AMBOY WD	PERTH AMBOY 1A	402537	742020	20	201 - 261	211FRNG
23-570	PERTH AMBOY WD	PERTH AMBOY 6	402538	741950	15	60 - 80	211ODBG
23-551	SOUTH RIVER WD	SRWD 6	402548	742155	47	155 - 208	211FRNG
23-434	SOUTH RIVER WD	SRWD 2	402556	742141	20	173 - 198	211FRNG
23-438	SOUTH RIVER WD	SRWD 5	402559	742142	20	132 - 182	211FRNG
23-355	SAYREVILLE WD	SWD A	402614	741950	30	72 - 82	211ODBG
23-367	SAYREVILLE WD	SWD G	402624	741944	46	56 - 87	211ODBG
23-368	SAYREVILLE WD	I	402626	741936	58	83 - 94	211ODBG
23-371	HERCULES POWDER	HERCULES 5	402638	742022	48	182 - 228	211FRNG
23-376	HERCULES POWDER	HERCULES 3	402649	742025	41	180 - 220	211FRNG
23-205	OLD BRIDGE MUA	LAWRENCE HAR 8	402700	741454	60	193 - 213	211ODBG
23-206	OLD BRIDGE MUA	LAWRENCE HAR 9	402700	741454	60	360 - 395	211FRNG
23-384	HERCULES POWDER	HERCULES 1REBT	402705	742023	54	170 - 225	211FRNG
23-401	SAYREVILLE WD	MORGAN P	402744	741628	44	254 - 288	211FRNG
23-403	SAYREVILLE WD	SWD Q-1973	402745	741631	40	78 - 136	211ODBG
23-411	SOUTH AMBOY WD	SAWD 8	402822	741630	10	209 - 234	211FRNG
23-414	SOUTH AMBOY WD	SAWD 10	402825	741632	10	38 - 48	211ODBG

NJ-WRD WELL NUMBER	SITE OWNER	LOCAL IDENTIFIER	DATE OF SAMPLE	TEMPER- ATURE (DEG C)	SPE- CIFIC CONDUCT- -ANCE (μ S/cm)	PH (UNITS)	CHLORIDE DIS- SOLVED (MG/L AS CL)
23-735	PERTH AMBOY WD	RUNYON 8R	8/ 4/1989	13.5	330	3.9	36
23-571	PERTH AMBOY WD	PERTH AMBOY 7	8/ 4/1989	12.0	249	3.9	19
23-195	PERTH AMBOY WD	PERTH AMBOY 5	8/ 4/1989	13.0	320	4.8	50
23-196	PERTH AMBOY WD	PERTH AMBOY 1A	8/ 4/1989	13.0	1060	6.0	280
23-570	PERTH AMBOY WD	PERTH AMBOY 6	8/ 4/1989	12.0	322	3.9	27
23-551	SOUTH RIVER WD	SRWD 6	8/ 7/1989	13.0	78	5.8	10
23-434	SOUTH RIVER WD	SRWD 2	8/ 7/1989	13.5	167	5.4	17
23-438	SOUTH RIVER WD	SRWD 5	8/ 7/1989	12.5	138	5.6	17
23-355	SAYREVILLE WD	SWD A	8/15/1989	14.5	284	4.5	51
23-367	SAYREVILLE WD	SWD G	8/ 9/1989	12.5	255	4.1	13
23-368	SAYREVILLE WD	I	8/ 9/1989	12.5	359	4.0	16
23-371	HERCULES POWDER	HERCULES 5	7/28/1989	13.0	10000	5.4	2700
23-376	HERCULES POWDER	HERCULES 3	7/28/1989	13.0	9500	5.7	2200
23-205	OLD BRIDGE MUA	LAWRENCE HAR 8	8/ 3/1989	12.5	53	5.1	5.0
23-206	OLD BRIDGE MUA	LAWRENCE HAR 9	8/ 3/1989	13.5	66	6.2	1.9
23-384	HERCULES POWDER	HERCULES 1REBT	7/28/1989	14.0	1400	6.0	350
23-401	SAYREVILLE WD	MORGAN P	8/ 9/1989	12.5	72	6.0	4.6
23-403	SAYREVILLE WD	SWD Q-1973	8/ 9/1989	13.0	225	4.3	27
23-411	SOUTH AMBOY WD	SAWD 8	8/10/1989	13.5	82	6.1	8.2
23-414	SOUTH AMBOY WD	SAWD 10	8/10/1989	13.0	340	4.1	46

Aquifer unit:

211ODBG - Old Bridge aquifer, Potomac-Raritan-Magothy aquifer system
211FRNG - Farrington aquifer, Potomac-Raritan-Magothy aquifer system

QUALITY OF GROUND WATER - SALTWATER MONITORING NETWORK
WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MONMOUTH COUNTY

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NJ-WRD WELL NUMBER	SITE OWNER	LOCAL IDENTIFIER	LATITUDE	LONGITUDE	ELEV. LAND SURF. (FT. NGVD)	SCREENED INTERVAL (FT.)	AQUIFER UNIT
25-234	MANASQUAN WD	MWD 3	400712	740328	15	118*	121CKKD
25-235	MANASQUAN WD	MWD 2R	400712	740328	21	103 - 118	121CKKD
25-552	MANASQUAN WD	MWD 7	400712	740328	20	94 - 112	121CKKD
25-237	MANASQUAN WD	MWD 5	400714	740329	15	97 - 117	121CKKD
25-387	SPRING LK HT WD	SPRING LK HGT1	400857	740309	60	570 - 600	211MLRW
25-391	SPRING LK HT WD	SPRING LK HGT4	400928	740211	20	485 - 560	211MLRW
25-018	BELMAR BORO WD	10 (2 ELECT)	401038	740146	20	581*	211EGLS
25-026	BELMAR BORO WD	BWD 4 ELEC(11)	401102	740045	15	601 - 671	211EGLS
25-014	AVON WD	AWD 1	401138	740125	28	424 - 504	211MLRW
25-001	ALLENHURST WD	AWD 4	401401	740025	17	525 - 565	211EGLS
25-117	HIGHLANDS WD	HWD 4	402401	735920	20	630 - 680	211ODBG
25-006	ATLAN HIGH WD	AHWD 1	402437	740236	20	519 - 582	211ODBG
25-513	ATLAN HIGH WD	AHWD 5	402442	740242	20	506 - 548	211ODBG
25-282	BAYSHORE SEW AU	BAYSHORE 1	402507	741344	20	245 - 260	211ODBG
25-111	SHORELANDS WC	W KEANSBURG 1	402532	740932	59	326 - 366	211ODBG
25-197	KEYPORT BORO WD	KEYPORT 7	402535	741214	35	304 - 354	211ODBG
25-112	SHORELANDS WC	W KEANSBURG 2	402537	740933	44	312 - 352	211ODBG
25-191	KEANSBURG MUA	KWD 6	402620	740741	10	302 - 362	211ODBG
25-195	KEANSBURG MUA	KWD 5A	402621	740743	15	290 - 350	211ODBG
25-196	KEANSBURG MUA	KWD 3	402628	740744	12	308 - 348	211ODBG
25-453	UNION BEACH WD	UBWD 3 1977	402632	741051	10	480 - 532	211FRNG
25-420	UNION BEACH WD	UBWD 2 1969	402634	741051	10	262 - 289	211ODBG
25-514	INT FLAVOR FRAG	IFF-2R	402641	740911	14	266 - 312	211ODBG
25-320	NATIONAL PARK SERV.	FT HANCOCK 5A	402705	735959	14	838 - 878	211FRNG

NJ-WRD WELL NUMBER	SITE OWNER	LOCAL IDENTIFIER	DATE OF SAMPLE	TEMPER- ATURE (DEG C)	SPE- CIFIC CONDUCT- ANCE (µs/cm)	PH (UNITS)	CHLORIDE DIS- SOLVED (MG/L AS CL)
25-234	MANASQUAN WD	MWD 3	9/ 5/1989	13.5	76	4.4	10
25-235	MANASQUAN WD	MWD 2R	9/ 5/1989	13.5	104	4.5	13
25-552	MANASQUAN WD	MWD 7	9/ 5/1989	13.5	72	4.6	11
25-237	MANASQUAN WD	MWD 5	9/ 5/1989	13.5	67	4.8	9.7
25-387	SPRING LK HT WD	SPRING LK HGT1	9/ 1/1989	18.0	195	7.9	0.7
25-391	SPRING LK HT WD	SPRING LK HGT4	9/ 1/1989	18.0	194	7.9	0.7
25-018	BELMAR BORO WD	10 (2 ELECT)	9/ 1/1989	18.0	218	8.0	1.3
25-026	BELMAR BORO WD	BWD 4 ELEC(11)	9/ 1/1989	19.5	182	7.7	0.7
25-014	AVON WD	AWD 1	9/ 5/1989	17.0	244	7.8	2.8
25-001	ALLENHURST WD	AWD 4	8/25/1989	17.5	208	7.4	1.3
25-117	HIGHLANDS WD	HWD 4	8/16/1989	20.0	145	6.5	1.0
25-006	ATLAN HIGH WD	AHWD 1	8/18/1989	17.0	104	6.7	1.1
25-513	ATLAN HIGH WD	AHWD 5	8/18/1989	16.5	102	6.6	1.3
25-282	BAYSHORE SEW AU	BAYSHORE 1	8/18/1989	13.0	98	5.9	2.5
25-111	SHOERLANDS WC	W KEANSBURG 1	8/14/1989	14.0	68	6.1	1.4
25-197	KEYPORT BORO WD	KEYPORT 7	8/17/1989	14.0	124	6.2	15
25-112	SHORELANDS WC	W KEANSBURG 2	8/14/1989	14.0	73	6.2	1.4
25-191	KEANSBURG MUA	KWD 6	8/14/1989	14.0	800	6.2	200
25-195	KEANSBURG MUA	KWD 5A	8/14/1989	14.0	388	6.2	82
25-196	KEANSBURG MUA	KWD 3	8/14/1989	14.0	98	6.5	5.4
25-453	UNION BEACH WD	UBWD 3 1977	8/16/1989	15.5	85	6.4	2.1
25-420	UNION BEACH WD	UBWD 2 1969	8/16/1989	15.0	7800	6.1	2400
25-514	INT FLAVOR FRAG	IFF-2R	8/25/1989	14.0	64	6.2	1.4
25-320	NATIONAL PARK SERV.	FT HANCOCK 5A	8/11/1989	19.5	121	6.7	5.0

* Total depth of well.

Aquifer unit:

121CKKD - Kirkwood-Cohansey aquifer system
211MLRW - Wenonah-Mount Laurel aquifer
211EGLS - Englishtown aquifer system

211ODBG - Old Bridge aquifer, Potomac-Raritan-Magothy
aquifer system

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

MORRIS COUNTY

NJ-WRD WELL NUMBER	SITE OWNER	LOCAL IDENTIFIER	LATITUDE	LONGITUDE	ELEV. LAND SURF. (FT. NGVD)	OPEN OR SCREENED INTERVAL (FT.)	AQUIFER UNIT
270432	PEDERSEN, JOHN	PEDERSEN 1	405654	0742717	630	50-123	400PCMB
271120	SMITH, EARL AND PHYLLIS	SMITH DOM	404813	0744617	1040	49.5-123	400PCMB
271138	MENDHAM BORO WATER COMPANY	MENDHAM TEST3-VALLEY WAY	404720	0743610	520	88-325	400PCMB
271139	MENDHAM BORO WATER COMPANY	MENDHAM TEST4-FRANKLIN	404621	0743522	520	69-560	400PCMB
271141	SOLODZ, PAUL	SOLODZ 1976/GOLDMINE 1	405140	0744313	1100	50-422	400PCMB
271142	SELENGUT, M & HOPLER, ROBERT	HOPLER 2	405140	0744228	1100	50-647	400PCMB
271144	MORRIS COUNTY MUA	MCMUA TEST9-CAMP PULASKI	405020	0743807	690	603-708	374LSVL
271145	ROXBURY WATER CO	ROXBURY 5	405006	0744020	770	164-345	400PCMB
271146	GUNNESON, ALVIN	GUNNESON DOM	405236	0744043	1140	52-100	400PCMB
271147	WASHINGTON TWP MUA	SCHOOLEY MOUNTAIN 2	404835	0744658	1030	50-200	400PCMB
271149	WASHINGTON TWP MUA	SCHOOLEY MOUNTAIN 11	404900	0744625	1060	50-450	400PCMB
271161	HIGGINS, CARL	HIGGINS DOM	404751	0744556	590	58.5-298	400PCMB
271162	GOETZ, GARY	GOETZ DOM	404802	0744501	575	70-230	400PCMB
271178	ROXBURY TWP WATER CO	RWC TW8-MOUNTAIN PARK	405258	0744104	1162	50-400	400PCMB

NJ-WRD WELL NUMBER	DATE	TEMPER- ATURE WATER (DEG C)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	HARD- NESS TOTAL (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)	BICAR- BONATE IT-FLD (MG/L AS HCO3)	CAR- BONATE IT-FLD (MG/L AS CO3)
270432	09-27-89	11.0	161	6.3	65	15	6.6	6.2	1.0	54	<0.1
271120	09-28-89	10.5	108	5.9	42	11	3.5	5.0	0.6	23	<0.1
271138	12-01-88	12.0	286	7.0	130	32	13	8.7	0.8	136	<0.1
271139	06-06-89	12.0	305	7.3	140	39	10	21	1.2	167	<0.1
271141	06-27-89	11.0	500	6.6	130	34	11	28	2.7	31	<0.1
271142	04-12-89	11.0	150	6.0	61	17	4.4	5.1	3.3	48	<0.1
271144	05-15-89	11.0	144	9.0	61	13	6.9	4.8	0.7	--	--
271145	11-28-88	11.5	125	7.3	56	16	4.0	6.4	0.7	83	<0.1
271146	09-20-89	11.0	--	--	--	--	--	--	--	68	<0.1
271147	11-30-88	10.5	273	6.7	110	26	12	8.5	0.9	71	<0.1
271149	11-17-88	11.5	160	7.6	70	19	5.5	7.1	3.2	77	<0.1
271161	08-29-89	12.0	180	8.0	78	25	3.8	6.7	0.5	--	--
271162	08-31-89	11.5	225	8.0	110	22	14	3.4	0.7	--	--
271178	09-27-89	11.0	269	7.4	130	39	7.0	6.2	0.7	116	--

NJ-WRD WELL NUMBER	DATE	ALKA- LITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN,AM- MONIA + ORGANIC DIS- (MG/L AS N)
270432	09-27-89	45	12	16	0.1	26	115	<0.010	1.30	<0.010	0.30
271120	09-28-89	19	12	12	<0.1	16	77	<0.010	1.30	<0.010	0.70
271138	12-01-88	110	12	13	0.2	29	186	<0.010	2.30	<0.010	0.40
271139	06-06-89	139	40	13	0.3	36	244	<0.010	0.230	<0.010	0.50
271141	06-27-89	29	28	91	0.1	22	243	<0.010	2.10	0.020	0.30
271142	04-12-89	39	29	4.4	0.1	20	110	0.010	0.370	0.020	<0.20
271144	05-15-89	61	3.0	4.3	0.2	17	91	0.020	1.10	0.030	<0.20
271145	11-28-88	69	3.2	1.1	0.2	27	101	<0.010	0.220	<0.010	0.20
271146	09-20-89	55	15	7.3	<0.1	17	--	<0.010	2.10	0.010	1.0
271147	11-30-88	59	20	33	0.1	34	175	<0.010	1.30	<0.010	<0.20
271149	11-17-88	63	14	2.0	0.1	35	124	<0.010	<0.100	0.020	0.40
271161	08-29-89	57	26	1.9	0.1	18	116	<0.010	<0.100	0.010	0.30
271162	08-31-89	96	13	4.8	0.1	13	131	<0.010	0.540	<0.010	<0.20
271178	09-27-89	93	20	15	0.1	20	166	<0.010	0.410	<0.010	0.40

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

MORRIS COUNTY

NJ-WRD WELL NUMBER	DATE	PHOS- PHOROUS DIS- SOLVED (MG/L AS P)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	BARIUM, DIS- SOLVED (UG/L AS BA)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, DIS- SOLVED (UG/L AS CU)
270432	09-27-89	0.020	0.010	<10	<1	--	--	<1	<1	--	20
271120	09-28-89	0.030	0.020	<10	<1	--	--	<1	<1	--	15
271138	12-01-88	0.030	0.030	<10	<1	--	--	<1	1	--	3
271139	06-06-89	0.020	0.020	20	<1	--	--	1	<1	--	1
271141	06-27-89	0.020	<0.010	<10	<1	--	--	<1	<1	--	2
271142	04-12-89	<0.010	<0.010	<10	<1	--	--	<1	<1	--	2
271144	05-15-89	0.030	0.020	<10	<1	--	--	<1	<1	--	1
271145	11-28-88	0.030	0.030	<10	<1	--	--	<1	<1	--	1
271146	09-20-89	<0.010	0.010	<10	1	--	--	<1	2	--	20
271147	11-30-88	0.030	0.030	<10	<1	--	--	<1	<1	--	4
271149	11-17-88	0.020	0.020	<10	<1	--	--	<1	<1	--	1
271161	08-29-89	--	<0.010	20	<1	12	<0.5	<1	<5	<3	<10
271162	08-31-89	--	<0.010	<10	<1	9	<0.5	<1	<5	<3	<10
271178	09-27-89	<0.010	<0.010	<10	<1	--	--	<1	<1	--	1

NJ-WRD WELL NUMBER	DATE	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)
270432	09-27-89	3	1	--	3	<0.1	--	--	--	--	--
271120	09-28-89	<3	1	--	<1	<0.1	--	--	--	--	--
271138	12-01-88	<3	<5	--	<1	0.2	--	--	--	--	--
271139	06-06-89	17	<1	--	21	<0.1	--	--	--	--	--
271141	06-27-89	1700	<1	--	320	<0.1	--	--	--	--	--
271142	04-12-89	1400	<5	--	120	<0.1	--	--	--	--	--
271144	05-15-89	19	<1	--	7	<0.1	--	--	--	--	--
271145	11-28-88	12	<5	--	5	0.1	--	--	--	--	--
271146	09-20-89	<3	1	--	<1	0.1	--	--	--	--	--
271147	11-30-88	7	<5	--	<1	<0.1	--	--	--	--	--
271149	11-17-88	11	8	--	<1	0.1	--	--	--	--	--
271161	08-29-89	4	<10	5	2	--	<10	<10	<1.0	72	<6
271162	08-31-89	5	10	<4	3	--	<10	<10	<1.0	29	<6
271178	09-27-89	150	<1	--	190	<0.1	--	--	--	--	--

NJ-WRD WELL NUMBER	DATE	ZINC, DIS- SOLVED (UG/L AS ZN)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	PHENOLS TOTAL (UG/L)	DI- CHLORO- BROMO- METHANE TOTAL (UG/L)	CARBON- TETRA- CHLO- RIDE TOTAL (UG/L)	1,2-DI- CHLORO- ETHANE TOTAL (UG/L)	BROMO- FORM TOTAL (UG/L)	CHLORO- DI- BROMO- METHANE TOTAL (UG/L)	CHLORO- FORM TOTAL (UG/L)	TOLUENE TOTAL (UG/L)
270432	09-27-89	4	0.5	<1	--	--	--	--	--	--	--
271120	09-28-89	7	0.5	<1	--	--	--	--	--	--	--
271138	12-01-88	4	0.4	3	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	<0.20
271139	06-06-89	25	0.5	<1	--	--	--	--	--	--	--
271141	06-27-89	16	0.5	3	--	--	--	--	--	--	--
271142	04-12-89	52	0.9	<1	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	<0.20
271144	05-15-89	<3	0.4	<1	--	--	--	--	--	--	--
271145	11-28-88	7	0.3	2	--	--	--	--	--	--	--
271146	09-20-89	12	0.5	<1	--	--	--	--	--	--	--
271147	11-30-88	130	0.4	<1	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
271149	11-17-88	30	0.3	2	--	--	--	--	--	--	--
271161	08-29-89	<3	0.3	--	--	--	--	--	--	--	--
271162	08-31-89	7	6.7	--	--	--	--	--	--	--	--
271178	09-27-89	4	0.5	<1	--	--	--	--	--	--	--

QUALITY OF GROUND WATER
WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MORRIS COUNTY

NJ-WRD WELL NUMBER	DATE	BENZENE TOTAL (UG/L)	CHLORO- BENZENE TOTAL (UG/L)	CHLORO- ETHANE TOTAL (UG/L)	ETHYL- BENZENE TOTAL (UG/L)	METHYL- BROMIDE TOTAL (UG/L)	METHYL- CHLO- RIDE TOTAL (UG/L)	METHYL- ENE CHLO- RIDE TOTAL (UG/L)	TETRA- CHLORO- ETHYL- ENE TOTAL (UG/L)	TRI- CHLORO- FLUORO- METHANE TOTAL (UG/L)	1,1-DI- CHLORO- ETHANE TOTAL (UG/L)
270432	09-27-89	--	--	--	--	--	--	--	--	--	--
271120	09-28-89	--	--	--	--	--	--	--	--	--	--
271138	12-01-88	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
271139	06-06-89	--	--	--	--	--	--	--	--	--	--
271141	06-27-89	--	--	--	--	--	--	--	--	--	--
271142	04-12-89	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
271144	05-15-89	--	--	--	--	--	--	--	--	--	--
271145	11-28-88	--	--	--	--	--	--	--	--	--	--
271146	09-20-89	--	--	--	--	--	--	--	--	--	--
271147	11-30-88	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
271149	11-17-88	--	--	--	--	--	--	--	--	--	--
271161	08-29-89	--	--	--	--	--	--	--	--	--	--
271162	08-31-89	--	--	--	--	--	--	--	--	--	--
271178	09-27-89	--	--	--	--	--	--	--	--	--	--

NJ-WRD WELL NUMBER	DATE	1,1-DI- CHLORO- ETHYL- ENE TOTAL (UG/L)	1,1,1- TRI- CHLORO- ETHANE TOTAL (UG/L)	1,1,2- TRI- CHLORO- ETHANE TOTAL (UG/L)	1,1,2,2 TETRA- CHLORO- ETHANE TOTAL (UG/L)	1,2-DI- CHLORO- BENZENE TOTAL (UG/L)	1,2-DI- CHLORO- PROPANE TOTAL (UG/L)	1,2- TRANS DI CHLORO- ETHENE TOTAL (UG/L)	1,3-DI- CHLORO- PROPENE TOTAL (UG/L)	1,3-DI- CHLORO- BENZENE TOTAL (UG/L)	1,4-DI- CHLORO- BENZENE TOTAL (UG/L)
270432	09-27-89	--	--	--	--	--	--	--	--	--	--
271120	09-28-89	--	--	--	--	--	--	--	--	--	--
271138	12-01-88	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
271139	06-06-89	--	--	--	--	--	--	--	--	--	--
271141	06-27-89	--	--	--	--	--	--	--	--	--	--
271142	04-12-89	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
271144	05-15-89	--	--	--	--	--	--	--	--	--	--
271145	11-28-88	--	--	--	--	--	--	--	--	--	--
271146	09-20-89	--	--	--	--	--	--	--	--	--	--
271147	11-30-88	<0.20	0.50	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
271149	11-17-88	--	--	--	--	--	--	--	--	--	--
271161	08-29-89	--	--	--	--	--	--	--	--	--	--
271162	08-31-89	--	--	--	--	--	--	--	--	--	--
271178	09-27-89	--	--	--	--	--	--	--	--	--	--

NJ-WRD WELL NUMBER	DATE	2- CHLORO- ETHYL- VINYL- ETHER TOTAL (UG/L)	DI- CHLORO- DI- FLUORO- METHANE TOTAL (UG/L)	TRANS- 1,3-DI- CHLORO- PROPENE TOTAL (UG/L)	CIS 1,3-DI- CHLORO- PROPENE TOTAL (UG/L)	VINYL CHLO- RIDE TOTAL (UG/L)	TRI- CHLORO- ETHYL- ENE TOTAL (UG/L)	STYRENE TOTAL (UG/L)	XYLENE TOTAL WHOLE TOT REC (UG/L)
270432	09-27-89	--	--	--	--	--	--	--	--
271120	09-28-89	--	--	--	--	--	--	--	--
271138	12-01-88	<0.20	<0.20	<0.20	<0.20	<0.20	<0.2	<0.2	<0.2
271139	06-06-89	--	--	--	--	--	--	--	--
271141	06-27-89	--	--	--	--	--	--	--	--
271142	04-12-89	<0.20	<0.20	<0.20	<0.20	<0.20	<0.2	<0.2	<0.2
271144	05-15-89	--	--	--	--	--	--	--	--
271145	11-28-88	--	--	--	--	--	--	--	--
271146	09-20-89	--	--	--	--	--	--	--	--
271147	11-30-88	<0.20	<0.20	<0.20	<0.20	<0.20	<0.2	<0.2	<0.2
271149	11-17-88	--	--	--	--	--	--	--	--
271161	08-29-89	--	--	--	--	--	--	--	--
271162	08-31-89	--	--	--	--	--	--	--	--
271178	09-27-89	--	--	--	--	--	--	--	--

Aquifer Units:
374LSLV - Leithsville Formation
400PCMB - Precambrian Erathem

QUALITY OF GROUND WATER - SALTWATER MONITORING NETWORK
WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
OCEAN COUNTY

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NJ-WRD WELL NUMBER	SITE OWNER	LOCAL IDENTIFIER	LATITUDE	LONGITUDE	ELEV. LAND SURF. (FT. NGVD)	SCREENED INTERVAL (FT.)	AQUIFER UNIT
29-590	BEACH HAVEN WD	BHWD 9	393342	741431	5	552 - 630	122KRKDL
29-009	BEACH HAVEN WD	BHWD 8	393346	741430	5	572 - 656	122KRKDL
29-111	HARVEY CDRS WD	HCWD 4	394134	740832	9	465 - 500	122KRKDL
29-607	BARNEGAT LT WD	BLWD 4	394454	740655	5	597 - 662	124PNPN
29-004	BARNEGAT LT WD	BLWD 2	394524	740632	7	593 - 646	124PNPN
29-022	SHORE WATER CO	SWC 1	395422	740458	7	175 - 200	121CKKD
29-023	SHORE WATER CO	SWC 2	395423	740458	7	490 - 527	124PNPN
29-697	ARLINGTON BEACH WC	ABWC 1	395443	740500	10	76 - 86	121CKKD
29-935	SEASIDE PARK WD	EAST-REP (8)	395450	740455	10	474 - 514	124PNPN
29-809	OCEAN GATE BORO WD	OGBWD 4	395527	740826	10	330 - 370	124PNPN
29-515	PINE BEACH WU	PBWU 1	395558	741013	30	135 - 197	121CKKD
29-537	SEASIDE HGTS WD	SHWD 2	395636	740439	4	400 - 430	124PNPN
29-538	SEASIDE HGTS WD	SHWD 1R	395636	740439	5	144 - 175	121CKKD
29-815	SEASIDE HGTS WD	SHWD 6-87	395643	740443	7	129 - 149	121CKKD
29-626	TOMS RIVER WC	TRWC 30	395721	741230	9	1700 - 1875	211MRPA
29-453	LAVALLETTE WD	LWD 4	395808	740416	5	1358 - 1515	211MRPA
29-454	LAVALLETTE WD	LWD 2	395808	740421	5	1009 - 1136	211EGLS
29-100	NJ WATER CO	NORMANDY 3	395956	740344	8	1428 - 1479	211MRPA
29-504	NJ WATER CO	MANTOLOKING 7	400210	740310	5	1263 - 1368	211MRPA
29-006	NJ WATER CO	BAY HEAD 6	400405	740244	10	778 - 818	211EGLS
29-531	PT PLEASANT WD	PPWD 5	400454	740414	18	1256 - 1342	211MRPA
29-532	PT PLEASANT WD	PPWD 3	400459	740359	10	748 - 798	211EGLS
29-579	PT PLEAS BCH WD	PPBWD 11	400512	740251	5	130 - 143	121CKKD
29-807	PT PLEAS BCH WD	PPBWD 12	400536	740251	5	108 - 132	121CKKD
29-523	PT PLEAS BCH WD	PPBWD 10	400551	740243	5	87 - 130	121CKKD

NJ-WRD WELL NUMBER	SITE OWNER	LOCAL IDENTIFIER	DATE OF SAMPLE	TEMPER- ATURE (DEG C)	SPE- CIFIC CONDUCT- ANCE (μs/cm)	PH (UNITS)	CHLORIDE DIS- SOLVED (MG/L AS CL)
29-590	BEACH HAVEN WD	BHWD 9	8/22/1989	17.5	67	---	2.9
29-009	BEACH HAVEN WD	BHWD 8	8/22/1989	18.0	67	---	3.5
29-111	HARVEY CDRS WD	HCWD 4	8/22/1989	17.0	72	6.5	2.7
29-607	BARNEGAT LT WD	BLWD 4	8/22/1989	18.0	370	8.1	1.9
29-004	BARNEGAT LT WD	BLWD 2	8/22/1989	18.0	370	8.0	2.6
29-022	SHORE WATER CO	SWC 1	8/ 8/1989	14.0	57	5.8	4.7
29-023	SHORE WATER CO	SWC 2	8/ 8/1989	16.5	291	9.0	1.0
29-697	ARLINGTON BEACH WC	ABWC 1	8/ 8/1989	14.0	95	6.6	6.6
29-935	SEASIDE PARK WD	EAST-REP (8)	8/ 8/1989	16.5	252	8.5	1.1
29-809	OCEAN GATE BORO WD	OGBWD 4	8/18/1989	14.0	165	7.3	2.9
29-515	PINE BEACH WU	PBWU 1	8/18/1989	12.5	67	4.4	7.0
29-537	SEASIDE HGTS WD	SHWD 2	8/ 8/1989	16.5	219	8.6	2.1
29-538	SEASIDE HGTS WD	SHWD 1R	8/ 8/1989	14.5	1270	6.3	300
29-815	SEASIDE HGTS WD	SHWD 6-87	8/ 8/1989	14.5	670	5.9	150
29-626	TOMS RIVER WC	TRWC 30	8/18/1989	26.5	120	7.3	0.9
29-453	LAVALLETTE WD	LWD 4	8/17/1989	23.5	191	7.5	1.0
29-454	LAVALLETTE WD	LWD 2	8/17/1989	20.5	420	8.3	1.9
29-100	NJ WATER CO	NORMANDY 3	8/17/1989	22.5	191	7.3	3.7
29-504	NJ WATER CO	MANTOLOKING 7	8/17/1989	25.0	170	7.2	1.0
29-006	NJ WATER CO	BAY HEAD 6	8/17/1989	21.0	212	8.0	1.0
29-531	PT PLEASANT WD	PPWD 5	8/17/1989	25.0	150	6.9	0.9
29-532	PT PLEASANT WD	PPWD 3	8/17/1989	21.0	202	7.7	0.7
29-579	PT PLEAS BCH WD	PPBWD 11	8/17/1989	14.0	1260	6.5	340
29-807	PT PLEAS BCH WD	PPBWD 12	8/17/1989	14.5	1320	6.6	410
29-523	PT PLEAS BCH WD	PPBWD 10	8/17/1989	14.5	1020	6.5	300

Aquifer unit:

121CKKD - Kirkwood-Cohansey aquifer system
122KRKDL - Atlantic City 800-foot sand of
the Kirkwood Formation

124PNPN - Piney Point aquifer
211EGLS - Englishtown aquifer system
211MRPA - Potomac-Raritan-Magothy aquifer system

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

PASSAIC COUNTY

NJ-WRD WELL NUMBER	SITE OWNER	LOCAL IDENTIFIER	LATITUDE	LONGITUDE	ELEV. LAND SURF. (FT. NGVD)	OPEN OR SCREENED INTERVAL (FT.)	AQUIFER UNIT
310009	WINDBEAM WATER	WINDBEAM 5	410720	0741442	440	50-186	400PCMB
310054	OLD MILFORD HOMES	OLD MILFORD 1 OF 3	410545	0742248	970	18-206	400PCMB
310055	WEST MILFORD TOWNSHIP MUA	AWOSTING 3 - WM 3040	410909	0742020	650	54-360	400PCMB
310057	WEST MILFORD TOWNSHIP MUA	CONCORD RD-BALD EAGLE	410639	0742332	770	61-350	400PCMB

NJ-WRD WELL NUMBER	DATE	TEMPER- ATURE WATER (DEG C)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	HARD- NESS TOTAL (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)	BICAR- BONATE IT-FLD (MG/L AS HCO3)
310009	09-26-89	12.0	350	7.4	160	49	10	7.5	0.7	156
310054	08-25-89	11.0	216	6.4	87	22	7.8	8.8	0.6	56
310055	08-25-89	12.0	236	7.3	100	22	11	8.6	0.5	79
310057	09-26-89	11.5	422	7.5	180	47	16	16	0.5	172

NJ-WRD WELL NUMBER	DATE	CAR- BONATE IT-FLD (MG/L AS CO3)	ALKA- LITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)
310009	09-26-89	<0.1	127	11	26	0.1	20	206	<0.010	1.10
310054	08-25-89	<0.1	45	16	24	0.2	19	128	<0.010	0.49
310055	08-25-89	<0.1	65	11	21	0.7	20	134	<0.010	<0.10
310057	09-26-89	<0.1	141	29	32	0.1	11	237	0.010	0.10

NJ-WRD WELL NUMBER	DATE	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N)	PHOS- PHOROUS DIS- SOLVED (MG/L AS P)	PHOS- PHOROUS ORTHO, DIS- SOLVED (MG/L AS P)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	ARSENIC DIS- SOLVED (UG/L AS AS)	CADMIUM DIS- SOLVED (UG/L AS CD)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR)
310009	09-26-89	<0.010	1.2	0.010	0.020	20	<1	<1	<1
310054	08-25-89	0.021	0.20	<0.010	<0.010	<10	<1	<1	<1
310055	08-25-89	<0.010	<0.20	<0.010	0.020	10	<1	<1	<1
310057	09-26-89	0.041	0.60	0.010	0.021	<10	<1	<1	<1

NJ-WRD WELL NUMBER	DATE	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	ZINC, DIS- SOLVED (UG/L AS ZN)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	PHENOLS TOTAL (UG/L)
310009	09-26-89	<1	7	1	<1	<0.1	17	0.7	<1
310054	08-25-89	4	4	2	<1	<0.1	<3	0.7	--
310055	08-25-89	1	4	<1	<1	<0.1	25	0.4	--
310057	09-26-89	<1	240	<1	410	<0.1	12	0.4	<1

Aquifer Unit:
400 PCMB - Precambrian Erathem

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

UNION COUNTY

NJ-WRD WELL NUMBER	SITE OWNER	LOCAL IDENTIFIER		LATITUDE	LONGITUDE	ELEV. LAND SURF. (FT. NGVD)	OPEN OR SCREENED INTERVAL (FT.)		AQUIFER UNIT		
390119	UNION CO PARK	UNION CO PARK OBS		404106	0741719	69	290*		#		
NJ-WRD WELL NUMBER	DATE	TEMPER- ATURE WATER (DEG C)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH (STAND- ARD UNITS)	DI- CHLORO- BROMO- METHANE TOTAL (UG/L)	CARBON- TETRA- CHLO- RIDE TOTAL (UG/L)	1,2-DI- CHLORO- ETHANE TOTAL (UG/L)	BROMO- FORM TOTAL (UG/L)	CHLORO- DI- BROMO- METHANE TOTAL (UG/L)	CHLORO- FORM TOTAL (UG/L)	TOLUENE TOTAL (UG/L)
390119	01-10-89	12.5	733	7.70	<0.20	<0.20	<0.20	<0.20	<0.20	0.80	<0.20
NJ-WRD WELL NUMBER	DATE	BENZENE TOTAL (UG/L)	CHLORO- BENZENE TOTAL (UG/L)	CHLORO- ETHANE TOTAL (UG/L)	ETHYL- BENZENE TOTAL (UG/L)	METHYL- BROMIDE TOTAL (UG/L)	METHYL- CHLO- RIDE TOTAL (UG/L)	METHYL- ENE CHLO- RIDE TOTAL (UG/L)	TETRA- CHLORO- ETHYL- ENE TOTAL (UG/L)	TRI- CHLORO- FLUORO- METHANE TOTAL (UG/L)	1,1-DI- CHLORO- ETHANE TOTAL (UG/L)
390119	01-10-89	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.30
NJ-WRD WELL NUMBER	DATE	1,1-DI- CHLORO- ETHYL- ENE TOTAL (UG/L)	1,1,1- TRI- CHLORO- ETHANE TOTAL (UG/L)	1,1,2- TRI- CHLORO- ETHANE TOTAL (UG/L)	1,1,2,2 TETRA- CHLORO- ETHANE TOTAL (UG/L)	1,2-DI- CHLORO- BENZENE TOTAL (UG/L)	1,2-DI- CHLORO- PROPANE TOTAL (UG/L)	1,2- TRANS DI CHLORO- ETHENE TOTAL (UG/L)	1,3-DI- CHLORO- PROPENE TOTAL (UG/L)	1,3-DI- CHLORO- BENZENE TOTAL (UG/L)	
390119	01-10-89	8.7	16	<0.20	<0.20	<0.20	<0.20	0.30	<0.20	<0.20	
NJ-WRD WELL NUMBER	DATE	1,4-DI- CHLORO- BENZENE TOTAL (UG/L)	2- CHLORO- ETHYL- VINYL- ETHER TOTAL (UG/L)	DI- CHLORO- DI- FLUORO- METHANE TOTAL (UG/L)	TRANS- 1,3-DI- CHLORO- PROPENE TOTAL (UG/L)	CIS 1,3-DI- CHLORO- PROPENE TOTAL (UG/L)	VINYL CHLO- RIDE TOTAL (UG/L)	TRI- CHLORO- ETHYL- ENE TOTAL (UG/L)	STYRENE TOTAL (UG/L)	XYLENE TOTAL WATER WHOLE TOT REC (UG/L)	
390119	01-10-89	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	2.8	<0.2	<0.2	

* Total depth of well

Aquifer Unit:

Passaic Formation of Jurassic-Triassic age

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FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI).

Multiply inch-pound units	By	To obtain SI units
<i>Length</i>		
inches (in)	2.54×10^1	millimeters (mm)
	2.54×10^{-2}	meters (m)
feet (ft)	3.048×10^{-1}	meters (m)
miles (mi)	1.609×10^0	kilometers (km)
<i>Area</i>		
acres	4.047×10^3	square meters (m ²)
	4.047×10^{-1}	square hectometers (hm ²)
	4.047×10^{-3}	square kilometers (km ²)
square miles (mi ²)	2.590×10^0	square kilometers (km ²)
<i>Volume</i>		
gallons (gal)	3.785×10^0	liters (L)
	3.785×10^0	cubic decimeters (dm ³)
	3.785×10^{-3}	cubic meters (m ³)
million gallons	3.785×10^3	cubic meters (m ³)
	3.785×10^{-3}	cubic hectometers (hm ³)
cubic feet (ft ³)	2.832×10^1	cubic decimeters (dm ³)
	2.832×10^{-2}	cubic meters (m ³)
cfs-days	2.447×10^3	cubic meters (m ³)
	2.447×10^{-3}	cubic hectometers (hm ³)
acre-feet (acre-ft)	1.233×10^3	cubic meters (m ³)
	1.233×10^{-3}	cubic hectometers (hm ³)
	1.233×10^{-6}	cubic kilometers (km ³)
<i>Flow</i>		
cubic feet per second (ft ³ /s)	2.832×10^1	liters per second (L/s)
	2.832×10^1	cubic decimeters per second (dm ³ /s)
	2.832×10^{-2}	cubic meters per second (m ³ /s)
gallons per minute (gal/min)	6.309×10^{-2}	liters per second (L/s)
	6.309×10^{-2}	cubic decimeters per second (dm ³ /s)
	6.309×10^{-5}	cubic meters per second (m ³ /s)
million gallons per day	4.381×10^1	cubic decimeters per second (dm ³ /s)
	4.381×10^{-2}	cubic meters per second (m ³ /s)
<i>Mass</i>		
tons (short)	9.072×10^{-1}	megagrams (Mg) or metric tons

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