Chemical Characteristics Of Delaware River Water Trenton, New Jersey, to Marcus Hook Pennsylvania

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CHEMICAL CHARACTERISTICS OF DELAWARE RIVER WATER, TRENTON, N. J., TO MARCUS HOOK, PA.

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ABSTRACT

This progress report gives the results of an investigation of the quality of water in the Delaware River from Trenton, N. J. to Marcus Hook, Pa., for the period August 1949 to December 1952. The Delaware River is the principal source of water for the many industries and municipal water supplies along this reach of the river and both industries and municipalities use it for the disposal of their wastes. Consequently, a study of the quality of the water and variations in the quality caused by changes in streamflow, tidal effects, pollution and other factors is important to the many users. In both New Jersey and Pennsylvania steps are being taken to abate pollution, thus it is of more than passing interest to measure the effects of waste treatment on the quality of the Delaware River water.

At average or higher rates of streamflow the mineral content of the water increases slightly from Trenton to Marcus Hook. There is little variation in the concentration of dissolved minerals from bank to bank or from top to bottom of the river. At times of protracted low rates of flow the effect of ocean water mixing with the river water may be noted as far upstream as Philadelphia. At such times the salinity is often greater near the bottom of the river than near the top. The increase in chloride concentration upstream from Philadelphia is small compared to the rapid increase downstream from Philadelphia. Temperatures of offshore water vary with the season, but on a given day are substantially uniform throughout the reach of the river from Trenton to Marcus Hook.

The water contains less dissolved oxygen as it flows downstream indicating that oxygen is being consumed by oxidizable matter. From Philadelphia downstream there are periods, especially in late summer, when the dissolved oxygen is barely sufficient to meet the oxygen demands of the pollution load.

INTRODUCTION

This progress report summarizes the results of a quality-of-water investigation of the Delaware River near Philadelphia, Pa., made cooperatively by the city of Philadelphia and the U. S. Geological Survey. Chemical quality and sanitary data at various locations on the Delaware River between Trenton, N. J., and Marcus Hook, Pa., collected in the period from August 1949 to December 1952, are presented, and the usefulness and significance of these data are discussed. The report will serve as a comprehensive source of data on the chemical characteristics of the Delaware River and will show the use made to date of data available from this continuing investigation.

The region adjacent to the 53 miles of river from Trenton to Marcus Hook is one of the great industrial regions of the United States. During 1952, more than 8,900 ships from 42 countries arrived in its port. A vessel going from Trenton to the sea would pass 25 cities and towns, thousands of manufacturing plants, 348 wharves, and 190,000 lineal feet of berthing space. Three trunk-line railroads serve this area and provide such rail-to-ship services as the operation of piers, tugs, car floats, cranes, terminals, elevators, and freight yards; the largest privately owned tidewater terminal is at Port Richmond, Philadelphia. Philadelphia is a large oil-refining center, and the port handles large quantities of petroleum and petroleum products. Many firms are building or planning to expand facilities, and a large steel plant recently located in this area.

Industries along the Delaware River between Trenton and Marcus Hook used over 1,939 cfs (3,000 mgd)[1] of water in 1951. The average flow in the Delaware River past Trenton, for the 36-year period from 1913-49 was 11,780 cfs (7,614 mgd), but in the late summer months the flow may decrease to less than 2,000 cfs (1,292 mgd). These factors of water use and streamflow make it important to have continuing data available on the quantity and quality of the water in this reach of the Delaware River. This information will be useful in solving such problems as the cost of water treatment for municipal and industrial uses, the availability of water suitable for new industries that may consider locating in this area, the influence of natural forces (such as tides, rainfall, and river flow) on the character of the river water, the assessing of the possible effects of channel dredging, the determination of the qualitative effects of infiltration of ground water, and the effects of pollution and waste treatment on the character of the river water. During the 41 months covered by this report, a start has been made in alleviating the pollution load on the river through more extensive and adequate waste-treatment methods. Data for this period will

[1]Abbreviations and technical terms are defined in the glossary, page 38.

be of value for comparison with that of later years when further progress in waste treatment is expected.

The first part of this report presents basic data on the geographic and economic environment of the Delaware River, its physical characteristics, the drainage areas and flow rates of this section of the river and its tributaries. Then the factors causing variations in electrical conductance, concentration of chemical constituents, water temperature, dissolved oxygen, and biochemical oxygen demand in several reaches and locations in the river from Bristol to Philadelphia, and from Philadelphia to Marcus Hook, are discussed. Next, the variation of electrical conductance and chemical constituents with the rate of flow of the river, the frequency of occurrence of selected water temperatures, the monthly variation of water discharge rates, water temperature, dissolved oxygen, and biochemical oxygen demand are considered. The report concludes with a tabular compilation of the data on which it is based.

ACKNOWLEDGMENTS

This investigation was conducted by the U. S. Geological Survey in cooperation with the city of 'Philadelphia, through its Water Department: Samuel S. Baxter, commissioner, and J. S. Reich, industrial waste engineer. It was under the general supervision of W. F. White, district chemist, 1948-52, and N. H. Beamer, district chemist of Pennsylvania, 1952-.

M. J. McGonigle assisted in the analytical work on the chemical quality of the water. The biological analyses were supervised by J. H. Thorpe, city chemist, Philadelphia.

Records of suspended sediments were obtained by personnel of the U. S. Geological Survey office at Schuylkill Haven, Pa., under the supervision of J. P. Eiler, engineer in charge.

Records of water discharge and drainage area in Pennsylvania and New Jersey were furnished by district offices of the U. S. Geological Survey at Harrisburg, Pa. and Trenton, N. J., respectively.

Data on the river cross section soundings were furnished by C. F. Wicker, chief, Engineering Division of Corps of Engineers, U. S. Army, Philadelphia, Pa.

EARLIER INVESTIGATIONS

More than 25 years ago a proposal was made by the city of New York to augment its water supply by impounding the water of certain

New York intrastate streams tributary to the upper Delaware River. During the last six months of 1930 the natural flow of the Delaware River was unusually low, and the salinity of the river increased markedly in the reach from Chester, Pa., to Marcus Hook, Pa. This reach is in an industrial area where the river water was used as a supply for the city of Chester, and then, as now, was used as process water, and for steam generation.

Officials of industries in this region that were affected became concerned about this unusual increase in salinity of the water and formed the Delaware River Conservation Association, primarily to investigate salinity of the stream. A study of the salinity data collected by this Association and cooperating industries in 1930 and 1931 has been published with charts for estimating the effect of river-flow on salinity conditions (Mason and Pietsch, 1940). Some industries in the Chester area still carry on their own salinity investigations.

In 1928 the U. S. Army Engineers began observations of salinity in the Delaware River and Delaware Bay and correlated such data with streamflow. These data were incorporated in a report published by the Commonwealth of Pennsylvania in 1935. These salinity observations were discontinued in 1934. Most of the infrequent data obtained since 1934 primarily consist of the results of chloride determinations and tide-gage records are unpublished, and are in the files of the U. S. Army Engineers.

In 1931, the Commonwealth of Pennsylvania authorized a comprehensive salinity survey, the results of which are described in the "Final Report to the Sanitary Water Board by the Bureau of Engineering on the Salinity Survey of the Delaware River". This report contains data for the years 1931-33 concerning the relation of salinity to flow rate of the river, and to the stage of the tide for the Delaware River below Marcus Hook.

The city of Philadelphia has been making daily chemical determinations at their Torresdale Filter Station since its inception in 1900. Some determinations, as that for chloride, are made daily, and others are made monthly. Analyses are also made daily of the water of the Schuylkill River (a tributary of the Delaware River) at the Belmont Filter Plant. Most of the resulting data are unpublished, and in the files of the city of Philadelphia.

Since October 1, 1944, the U. S. Geological Survey has maintained a daily sampling station at Morrisville, Pa., in cooperation with the Pennsylvania Department of Commerce, State Planning Board. Publications 17 and 23 of the State Planning Board contain complete chemical analyses of the water in the Delaware River at Morrisville, for the years 1944-46 (publication 17) and 1946-49

(publication 23). Also at Morrisville, sediment determinations have been made daily since September 1, 1949.

Although not conducting salinity investigations, several agencies have been instrumental in developing interest and concern for improving the quality of water in this reach of the Delaware River.

The Interstate Commission on the Delaware River (INCODEL) is a joint governmental agency created by the States of New York, New Jersey, Pennsylvania, and Delaware to formulate, adopt, and execute policies for the development and utilization of the resources of the Delaware River watershed. This agency has proposed the construction of specific dams and reservoirs in order that all States concerned may have an adequate supply of water of good quality from the Delaware River. However, these States must pass joint legislation in order to adopt the policies suggested.

The Pennsylvania Sanitary Water Board is an enforcement agency established by the Commonwealth of Pennsylvania to control pollution of the stream waters necessary for public water supply, preservation of fish and aquatic life, recreational purposes, agricultural, and industrial use.

The Water Resources Committee of the Greater Philadelphia-Delaware-South Jersey Council is composed of business men and local governmental officials who are interested in the economic and social advancement of the people of Delaware River basin. Realizing that these can be advanced only if an adequate supply of water of good quality is available, they have been making studies of the pollution of the local streams, policies advocated by INCODEL, public water supplies, and legislation affecting the water resources of the basin.

USE OF THE WATER

In the Delaware Valley between Trenton and Marcus Hook there are many different types of industry: power-generating stations which supply electricity for Pennsylvania, New Jersey, and Delaware; large oil refineries; chemical industries; textile and yarn mills; synthetic fiber and resin plants; distilleries; sugar refineries; many nationally-known plants manufacturing metal goods; branch factories of national food-processing companies; and shipbuilding concerns. In addition, there are several military installations.

The Delaware River provides over 97 percent of the water used by these industries. Most of this water is used for cooling or quenching purposes—especially in stations generating electricity,

the metal industries, and oil refineries—and needs little or no treatment before it is returned to the river. A smaller but still substantial quantity is used for process purposes by other manufacturing industries, chemical industries, sugar refineries, food-processing plants, and textile plants. Such water often requires treatment before it is pure enough to be returned to the river. Most of the water withdrawn from the river is non-consumptive and returned to it after use, but small quantities are lost through evaporation in cooling or quenching, or in use as boiler makeup water, or through incorporation into the product in the process industries.

Seldom can the raw river water be used industrially without some type of water treatment. The treatment depends upon the physical location of the plant and the intended use of the water. Industries in this area treat the river water in one or more of the following ways. Chlorine is added to prevent the growth of algae or other slime-producing materials in the water-distribution system. Alum or ferrous sulfate is added to aid in settling or flocculation of suspended solids. The water may be strained or filtered without the addition of any flocculant. The soda ash and lime process, or demineralizers are used at some plants to soften the water. Phosphate salts are added to aid in preventing the formation of scale. Sodium sulfite is added to aid in the removal of residual oxygen. The pH is adjusted. In the lower reaches of the river, where considerable oil may be present, the water is passed through oil separators. In certain industries it is necessary to reduce the amount of color.

Invasion of salty water from Delaware Bay causes another problem for industries and municipalities along the lower reaches of the river. The increase in concentration of salt in the river water requires more frequent blowdowns of steam boilers and increases the amount of chemicals required to soften the water. To decrease the amount of treatment required, some industries withdraw and store water from the river only on the ebb tide, when the salinity is less than on the floodtide. However, impounding of river water is required only when the salinity is high, as when the flow of river water is low.

FACTORS AFFECTING THE QUALITY OF THE WATER

A number of factors may influence the quality of water in a stream. The topography of the land and composition of minerals in the area drained by the river have much to do with the kind of dissolved materials in the water and their concentration. Also farmlands, mining regions, and industrial areas each affect the composition of the water differently. Variations in the quantity of

precipitation influence the quantities of dissolved and suspended matter carried into the river as well as the rate of discharge of the river. The several tributary streams are likewise influenced by these same factors and affect the quality of the main stem of the river differently depending upon their relative flows and the proportions of dissolved and suspended solids characteristic of each of them. Ground water, when it reaches the river, has an effect on quality of the river water. Industrial and sewage wastes that enter the river will also affect the quality of the river water. In addition to these factors, sea water has some tendency to mix with the river water, particularly in the reach of the river downstream from Philadelphia.

The East Branch and the West Branch Delaware River originate in the Catskill Mountains and flows in a southwestwardly direction to their junction at Hancock, N. Y. From there, the Delaware River flows southwardly 326 miles to the Atlantic Ocean as a boundary water first separating New York and Pennsylvania, then New Jersey and Pennsylvania, and finally New Jersey and Delaware. The river widens and deepens as it meanders through the Atlantic Coastal Plain to the sea. At its mouth, the Delaware River has a drainage area of 12,765 square miles which includes the area of the bay. The reach of the river from Trenton, N. J. to Marcus Hook, Pa., (fig. 1) is 53 miles long and drains an area of 3,606 square miles (32 percent of the total drainage area) and has a water area of 34 square miles. Plate 1 is a map showing the relation of the area included in this report to the total drainage area of the Delaware River.

The precipitation in the basin of the Delaware River, one of the factors influencing the amount of water in the river, is fairly evenly distributed throughout the year with maximum amounts occurring during the late summer months. Figure 2 is a hydrograph showing mean daily discharge of Delaware River at Trenton, N. J., for 1950. Figure 2 also illustrates the daily precipitation recorded at the Port Jervis, N. Y.; Equinunk, N. Y.; Portland, Pa.; and Phillipsburg, N. J. weather stations combined into one graph. These stations are located in the drainage basin of the Delaware River above Trenton. The peaks in the hydrograph curve usually lag behind the peaks in the precipitation curve by one to three days, depending on the distribution of rainfall on the watershed and time of travel from source of precipitation to runoff measuring site. A large increase in flow generally follows heavy rains (see fig. 2, November 26-27). However, even a relatively light rain may result in a heavy flow if augmented by melting snow as in the early spring months (see fig. 2, April 4-6). During the winter months the level of the ground water generally reaches its peak for the year and the gradient to the river is greatest; therefore, ground water will infiltrate to the river at a faster rate than during the summer months when the level of the ground water is lower. When the

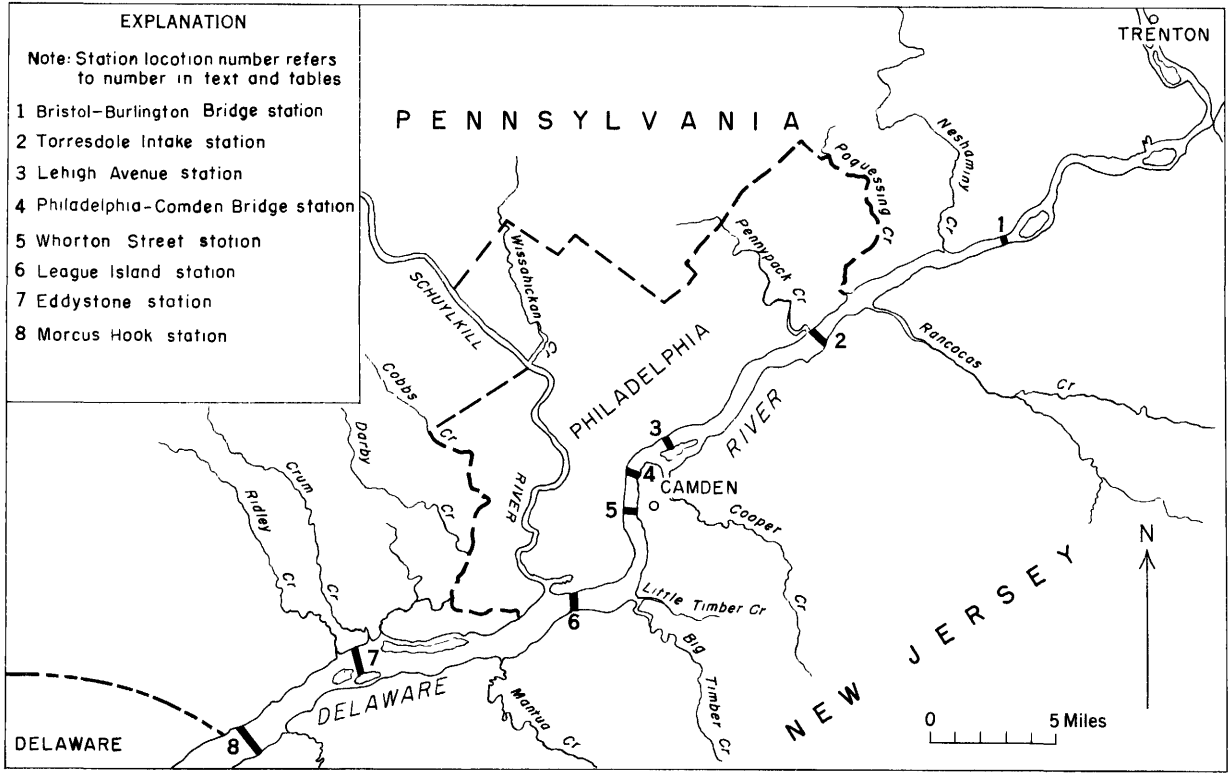

Figure 1.—Location of monthly sampling stations between Bristol, and Marcus Hook, Pa.

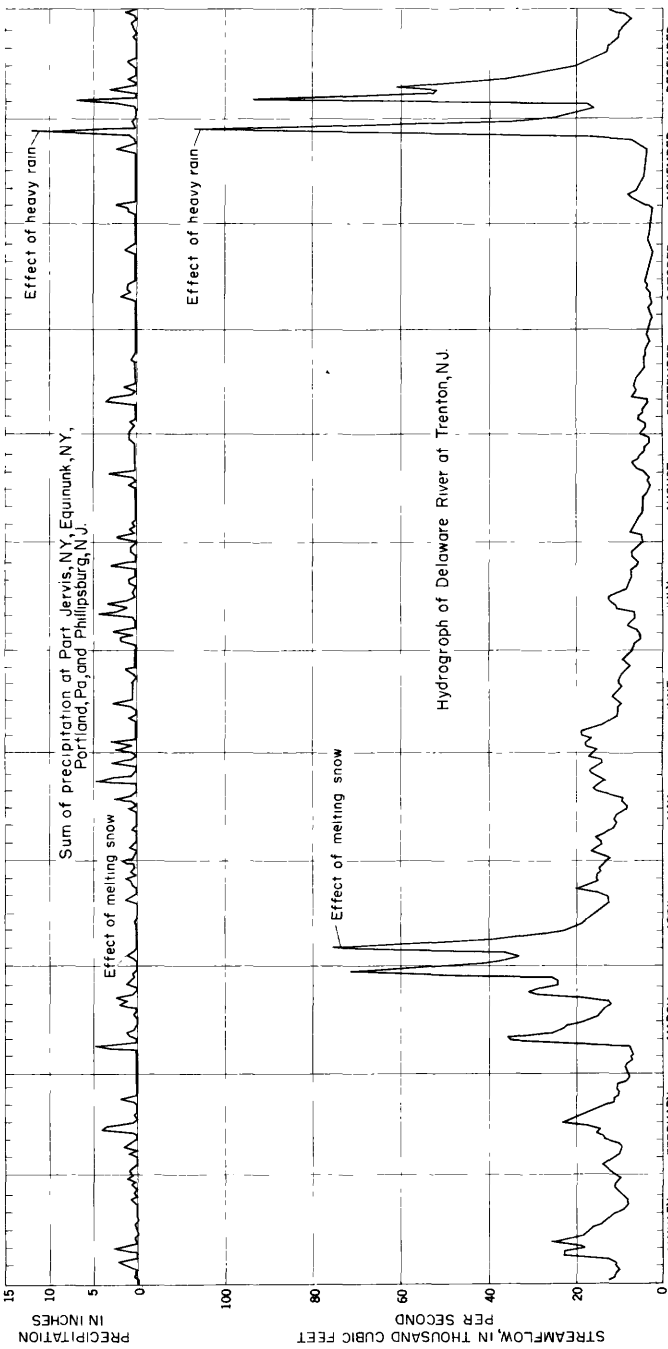

Figure 2.—The relation between streamflow at Trenton, and precipitation above Trenton, 1950.

ground is frozen, rain has difficulty penetrating the ground, and runoff to the stream is rapid (compare the parts of hydrograph for January and August 1950 in fig. 2). During the late spring months evapotranspiration consumes much of the water which falls on the ground; a smaller fraction of the rainfall runs off or seeps through the ground into the river.

A frequency curve for the streamflow at the gaging station at Trenton[2] for 1942-52 has been constructed, (fig. 3). This curve

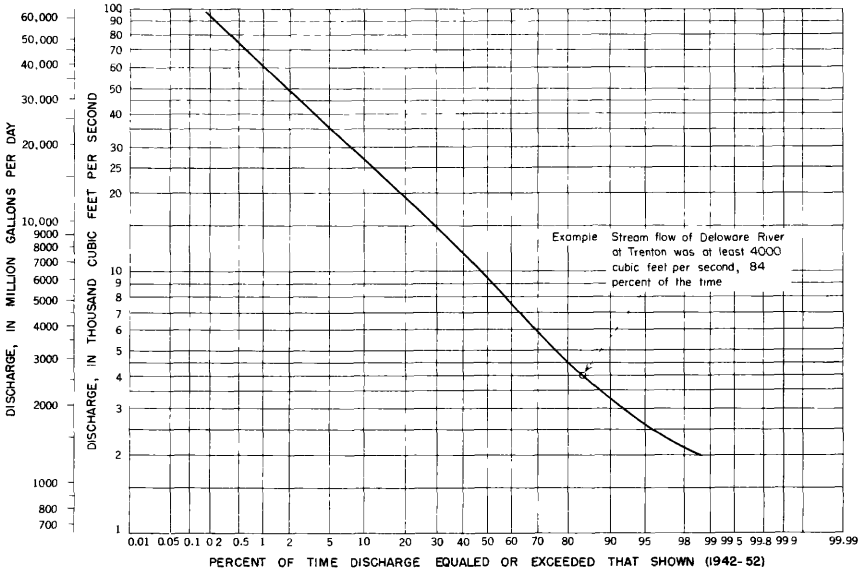

Figure 3. —Streamflow frequency curve at Trenton.

indicates the frequency of various flow rates, irrespective of the chronological sequence. For example, the flow rate was at least 4,000 cfs (2,585 mgd) during 84 percent of the time.

The discharge rate at Trenton for each month from October 1947 to September 1952 is illustrated in figure 4. For each month are plotted four data: the maximum daily flow, the minimum daily flow, the average monthly flow, and the range in readings of the middle 50 percent of the daily flows. The maximum daily flow is the highest point on the vertical line, the minimum daily flow is the lowest point on the vertical line, and the average monthly flow is repre-

[2]Average monthly and the annual discharge of Delaware River at Trenton, N. J. from 1913-49 are reported by Mangan, Graham, and White (1951), who also describe the Delaware River in Bucks County.

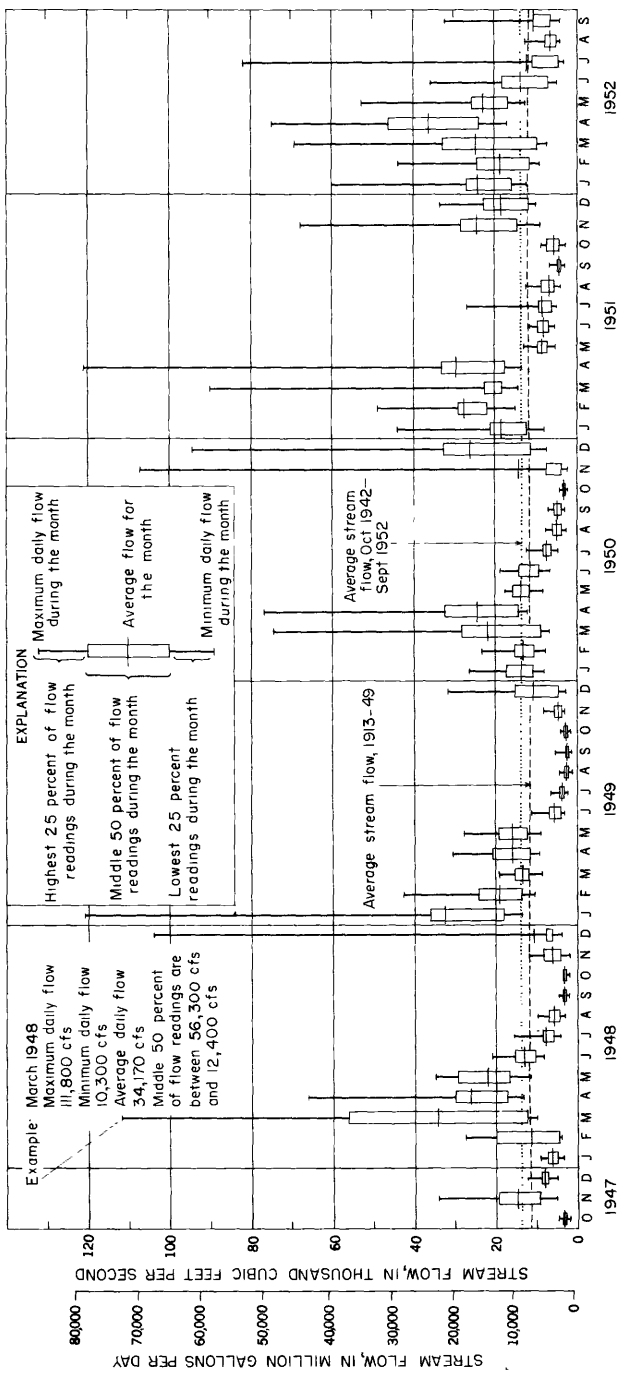

Figure 4.—Maximum, minimum, and average streamflow at Trenton 1947–52.

sented by a short horizontal line. The highest 25 percent of readings of the daily flows fall between the top of the rectangle and the top of the vertical line, the lowest 25 percent fall between the bottom of the rectangle and the bottom of the vertical line, the rectangle itself represents the middle 50 percent of the daily flows during the month. For comparison, the average flow for the 10-year period, October 1942 to September 1952, 13,392 cfs (8,655 mgd)—dotted line; and the average flow for the 36-year period, 1913 to 1949, 11,780 cfs (7,614 mgd)—dashed line; are shown in the figure. The rate of flow in the Delaware River and its tributaries is characterized by a typical yearly pattern. The greatest streamflow occurs in the period from late fall to early spring; during the summer and early fall months there is usually an extended period of low rate of flow.

The tributaries of the Delaware River affect the quality of the water in the main stem, in proportion to the volume of water added from the tributaries, and the amounts of the dissolved or suspended matter in the tributary waters. In table 1 are the tabulated drain-

Table 1.—*Drainage areas and discharge rates of the main tributaries of the Delaware River between Trenton, N. J. and Marcus Hook, Pa.*

Tributary	Location of gaging station on tributary	Drainage area above gaging sta. (sq miles)	Drainage area of tributary (sq miles)	Period of record for which average discharge rate is computed	Average discharge rate at gaging sta. (cfs)
New Jersey					
Assunpink Cr.	Trenton, N. J.	89.4	.....	1923-1951	116
Rancocas Cr.	Pemberton, N. J.	111	[c]341.4	1921-1951	162
Big Timber Cr.	.....	.....	[c]59.3	.....	.....
Pensauken Cr.	.....	.....	[c]35.4	.....	.....
Mantua Cr.	Pitman, N. J.	6.75	[c]51.2	1941-1951	11.7
Pennsylvania					
Common Cr.	.....	10.5	11.9	.....	.....
Neshaminy Cr.	nr. Langhorne, Pa.	210	233	1934-1952	274
Pennypack Cr.	.....	.....	56.0	.....	.....
Schuylkill River	Philadelphia, Pa.	1,893	1,909	1903-1912 1931-1952	[a]2,813
Darby Cr.	.....	.....	78.6	.....	.....
Crum Cr.	Woodlyn, Pa.	33.3	37.9	1931-1937	[a]43.8
Ridley Cr.	Moylan, Pa.	31.9	38.2	1931-1952	43.2
Chester Cr.	nr. Chester, Pa.	61.1	66.2	1931-1952	80.5
Marcus Hook Cr.	.....	.....	[b]5.5	.....	.....

[a] Adjusted for diversion.
[b] See bibliography: Pennsylvania Water Supply Commission, 1917.
[c] See bibliography: Vermeule, 1894.

age areas in square miles, average discharge rate in cubic feet per second, and the years for which the average flow was computed for the main tributaries of the Delaware River between Trenton and Marcus Hook.

Ground water occurs in abundance in the valley fill on both sides of the Delaware River between Trenton and Marcus Hook. It seems

probable that both seepage of ground water into the river and infiltration of river water into the ground-water aquifers occur between Trenton and Marcus Hook. Analyses of ground water show it to be much higher in mineral content than the water in the river adjacent to it. Infiltration of a large volume of ground water into the water of the Delaware River would increase its mineral content; a considerable flow of river water into the ground-water aquifers could reduce the mineral content of the ground water, although much depends upon the rate of flow and the kind of soil through which the water percolates.

Another factor influencing the quality of the river water is pollution by industries and municipalities. Industrial wastes, in general, are treated in some manner before they are returned to the sewage systems or directly to the river. Such treatment may consist of cooling the water to river temperature, neutralizing the acids, removing sediment or oil, or decomposing oxidizable or putrescent material by bacterial action. Unless all the pollutant is removed by treatment the river is depended upon to dilute and carry away the remaining waste material. Wastes added to the river, of course, will change its character, the ultimate effect upon the stream depending upon the total volume of waste, its nature and concentration, and the volume of water available for dilution. The growth in population and in industries will add more pollution to an already polluted Delaware River. Fortunately, both industries and governmental agencies in this area are aware of the importance of an adequate supply of water for continuous economic growth in this area. Municipalities and industries that had no treatment or inadequate treatment facilities before 1949 are presently treating or planning to treat waste waters. On April 6, 1951, the city of Philadelphia put into operation its new Northeast Sewage Treatment Works, now treating 97 millions of gallons per day. Two other plants, the Southeast and the Southwest Treatment Works, are under construction and when completed the 3 plants will serve an area having a population of 1,884,000. Industries, too, have improved their waste-treatment procedures, and newly established industries are giving special attention to the design of adequate treatment facilities.

In its lower reaches the Delaware River becomes a tidal stream with the head of tide at the Pennsylvania Railroad bridge at Trenton Falls. Fresh water from the upper Delaware River flows past Trenton, and is augmented by fresh water from the Schuylkill River and from other tributaries on both sides of the river between Trenton and Marcus Hook, and by precipitation directly on its surface, and possibly by ground-water infiltration. Salt water from the ocean tends to mix with the fresh water; on the flooding tide the salt water is carried upstream and on the ebbing tide, downstream. The percentage of ocean salt in the river is greatest near its mouth and diminishes upstream. Very little salt water is

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ever found upstream from central Philadelphia. The salinity increases when the discharge rate is low, and when a low discharge rate persists, the salinity encroaches progressively upstream from Marcus Hook toward Philadelphia, and also into the tidal tributaries.

COLLECTION AND ANALYSES OF WATER SAMPLES

Water samples for chemical and sanitary analyses are taken monthly from a boat furnished by the city of Philadelphia. The locations at which samples are taken are described in table 2 and

Table 2.—*Location of sampling stations*[1]

Station no.	Location	Description
1	Bristol-Burlington Bridge	300 feet upstream from the Bristol-Burlington Bridge.
2	Torresdale Intake	In river opposite the intake building of the Torresdale Filter Plant.
3	Lehigh Avenue	Between river end of pier 11 of Port Richmond Terminal, Lehigh Avenue, Philadelphia and west bank of Petty Island, N. J.
4	Philadelphia-Camden Bridge	Opposite pier 13 north, which is 100 feet south of Vine Street and Delaware Avenue, Philadelphia.
5	Wharton Street	Between pier 55 south, Wharton Street, Philadelphia, and Kaighn Point, Camden, N. J.
6	League Island	Between pier 2, U. S. Naval Base, League Island, Philadelphia, and a point 100 feet offshore, adjacent to and downstream from ferry slip, National Park, N. J.
7	Eddystone	Between river end of easternmost piers of Sun Shipbuilding and Drydock Co., Eddystone, Pa. and a point 2,000 feet offshore of north river bank of Monds Island, N. J.
8	Marcus Hook	Between river end of piers of Sun Oil Co., Marcus Hook, Pa., and a point 2,000 feet offshore from New Jersey bank of river.

[1] Refer to figure 1.

these sampling stations are also shown on figure 1. Samples are taken on one day in the early part of each month at the 4 upstream stations (stations 1, 2, 3, and 4). Usually on the following or preceding day samples are taken at the 4 downstream stations (stations 5, 6, 7, and 8). At each station a five-point traverse of the river is made. River cross sections at each station are shown in figure 5.

The content of dissolved oxygen in the water is determined when the sample is taken, and water is also collected for the determination of the five-day at 20° C biochemical oxygen demand (B.O.D.). These samples are taken at approximately 3 feet below the surface of the river. Additional samples are taken with a Foerst sampler at approximately 3 feet above the bottom of the river at most locations. The time of sampling and the temperature of the water are recorded immediately. Samples are collected in 370-cc capacity, pressure-closure bottles for the determination of pH, specific

Table 3.—*Type of analysis performed on bottom samples*[1] *at indicated locations on stations*

[c=comprehensive analysis consists of determination of color, pH, specific conductance, silica, iron, calcium, magnesium, sodium, bicarbonate, sulfate, chloride, fluoride, nitrate, dissolved solids, and hardness. p=partial analysis consisting of determination of pH, specific conductance, chloride, D. O., B. O. D., and suspended sediment]

Station no.	Station	Location on station				
		Pa. side	West center	Center	East center	New Jersey side
1.....	Bristol-Burlington Bridge.....	c	p	c	p	c
2.....	Torresdale Inlet, Philadelphia.....	.....	.....	.....	.....	.....
3.....	Lehigh Avenue, Philadelphia.....	.....	p	p	p	.....
4.....	Philadelphia-Camden Bridge.....	c	p	c	p	c
5.....	Wharton Street, Philadelphia.....	.....	p	p	p	.....
6.....	League Island, Philadelphia.....	.....	p	p	p	.....
7.....	Eddystone.....	.....	p	p	p	.....
8.....	Marcus Hook.....	c	p	c	p	c

[1]The table applies to samples collected from January 1951 to December 1952. From August 1949 to December 1950 comprehensive analysis were made of all bottom samples taken at Bristol-Burlington Bridge, Philadelphia-Camden Bridge, and Marcus Hook.

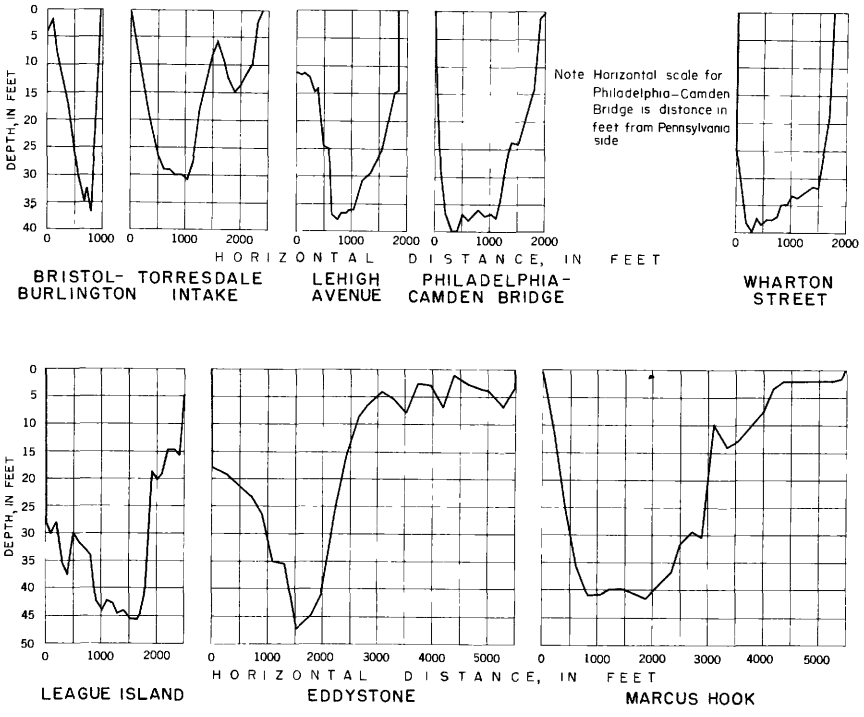

Figure 5.—Cross sections of Delaware River channel at sampling stations.

conductance, concentration of chloride, and suspended sediment. For more complete analyses, gallon-samples are collected in Pyrex bottles. Table 3 indicates the type of analysis performed for each sample from the bottom of the river. A partial analysis is performed on all top samples.

CHEMICAL AND PHYSICAL CHARACTERISTICS OF THE WATER

The water in the Delaware River above Philadelphia is fresh water and usually contains less than 200 ppm of dissolved solids. During the late summer months of 1949, when the average monthly flow rates were less than 3,000 cfs, the concentration of dissolved solids at the Philadelphia-Camden Bridge reached 248 ppm. Below Philadelphia, during the periods of low water flow, the concentration of dissolved solids has reached 5,000 ppm, due to the invasion of salt water.

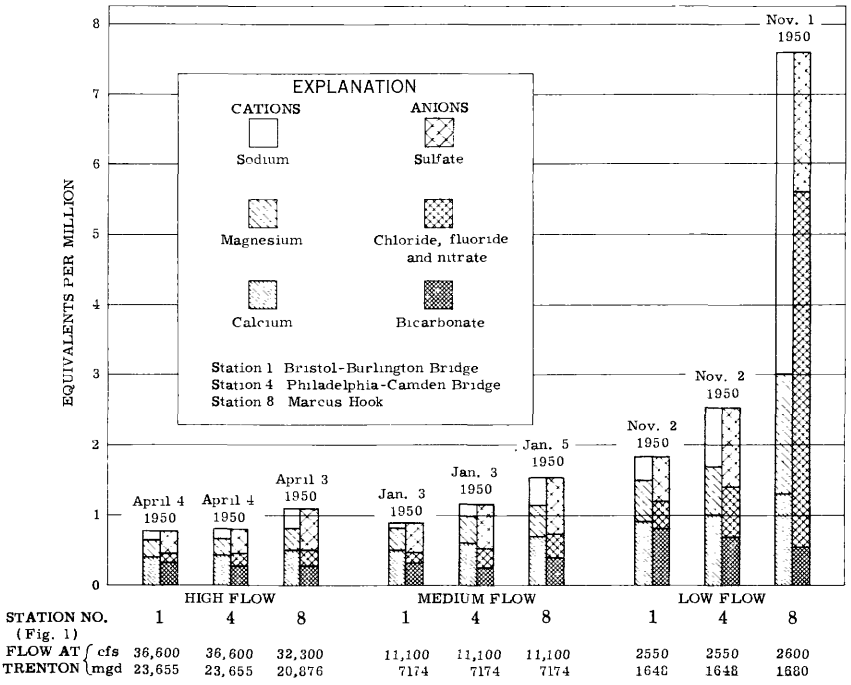

Figure 6.—Effect of streamflow on the quality of water at Bristol, Camden, and Marcus Hook.

Principal dissolved constituents.—The principal dissolved constituents present in the Delaware River are sulfate, chloride, fluoride, nitrate, bicarbonate, sodium, calcium, and magnesium ions. The relative quantities of these ions at the Bristol-Burlington Bridge, Philadelphia-Camden Bridge, and Marcus Hook stations are shown in figure 6 for high, medium, and low flow rates at Trenton. Minor quantities of other constituents such as aluminum, manganese, iron, silica, etc., are also present. Regardless of the amount of water flowing past Trenton, the equivalents per million of sodium ion and chloride ion increase downstream from Bristol to Marcus Hook. These increases in concentration are due principally to the increased mixing of ocean water with the fresh water as the river water moves toward the bay. The increase in the dissolved solids is more pronounced as the rate of flow decreases.

The amount of each individual chemical element present in the Delaware River will vary with the physical location and the rate of flow of the river. Figure 7 shows how the chloride content increases from Trenton to Marcus Hook. The chloride concentration in parts

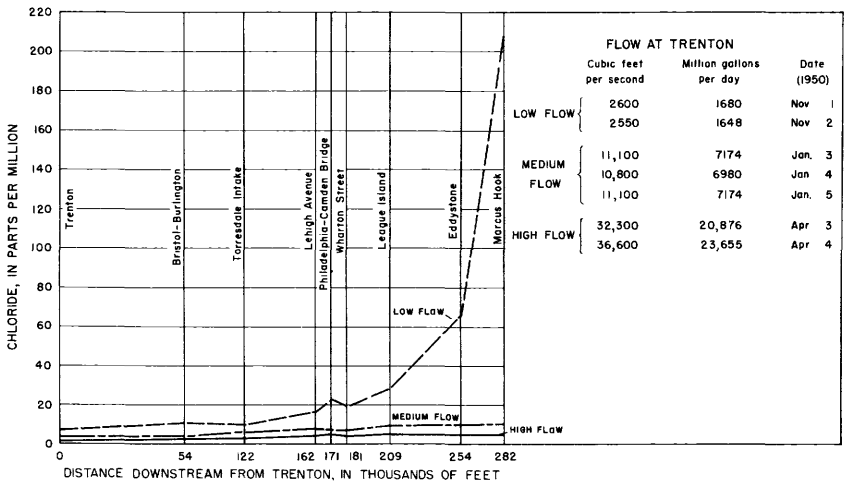

Figure 7.—Chloride concentration at sampling stations for high, medium, and low flow rates.

per million is plotted for each sampling station for typical medium, high, and low streamflow rates. In the example, typical of the river at medium flow rate, the chloride content of the water increases slightly from Trenton to Marcus Hook. When four to five times as much water flows in the river, the concentration of chloride may be reduced to as little as half these quantities. At low-flow

rates the chloride content increases sharply at Eddystone and Marcus Hook. At these locations there is a tendency for the ocean water to move upstream along the river bottom at low flow.

Specific conductance relations.—The specific conductance relations of natural waters are due to the ionization of salts in the water. The specific electrical conductance (or electrical conductivity) of water is the reciprocal of the electrical resistance of a cubic contimeter of the water, between electrodes each 1-square centimeter in area, and is expressed in a unit, the micromho. Because the electrical conductivity increases in direct proportions to the number of ions present, the specific electrical conductance is used as a measure of the concentration of dissolved salts. The measurement of electrical conductivity is more rapid and convenient than chemical analyses of water; however it gives only a fraction of the information obtained from a chemical analysis. The relation between electrical conductivity and dissolved solids for this part of the Delaware River is shown in figures 8 and 9. For this reach of the river the numerical value of specific conductance in micromhos measured at 25° C is approximately 1.5 times the weight of dissolved solids, in parts per million (fig. 9). Because the concentration of dissolved salts present in the water increases as more ocean water mixes with the fresh water during the ebb and flow of the tide, the electrical conductivity of the water increases downstream. This is demonstrated in figure 10 in which the electrical conductance in micromhos is plotted for each sampling station for typical high, medium, and low rates of flow.

The measurement of electrical conductivity is a convenient and rapid method for detecting sea-water intrusion or the presence of slugs of pollution,[3] for a change in the specific electrical conductance of a stream demonstrates a change in the amount or kind of dissolved material in the water. Where measurements of specific conductance are not accompanied by chemical analysis, it is convenient to have a means of estimating chloride or sulfate concentration from the specific electrical conductance. The relation between electrical conductivity and chloride is shown in figures 11, 12, 13, 14, and 15, and that between electrical conductivity and parts per million sulfate in figure 16.

Above a chloride concentration of 60 ppm, the relation between the chloride concentration and electrical conductivity is approximately a straight line when plotted on a logarithmic scale (fig. 12). In this range of chloride concentration, the majority of anions present are chloride ions, and the conductivity of the water is greatly dependent upon the chloride ion. Below 60 ppm chloride

[3]A slug of pollution is a compact mass of polluted water that remains in the stream for a time as a detectable unit.

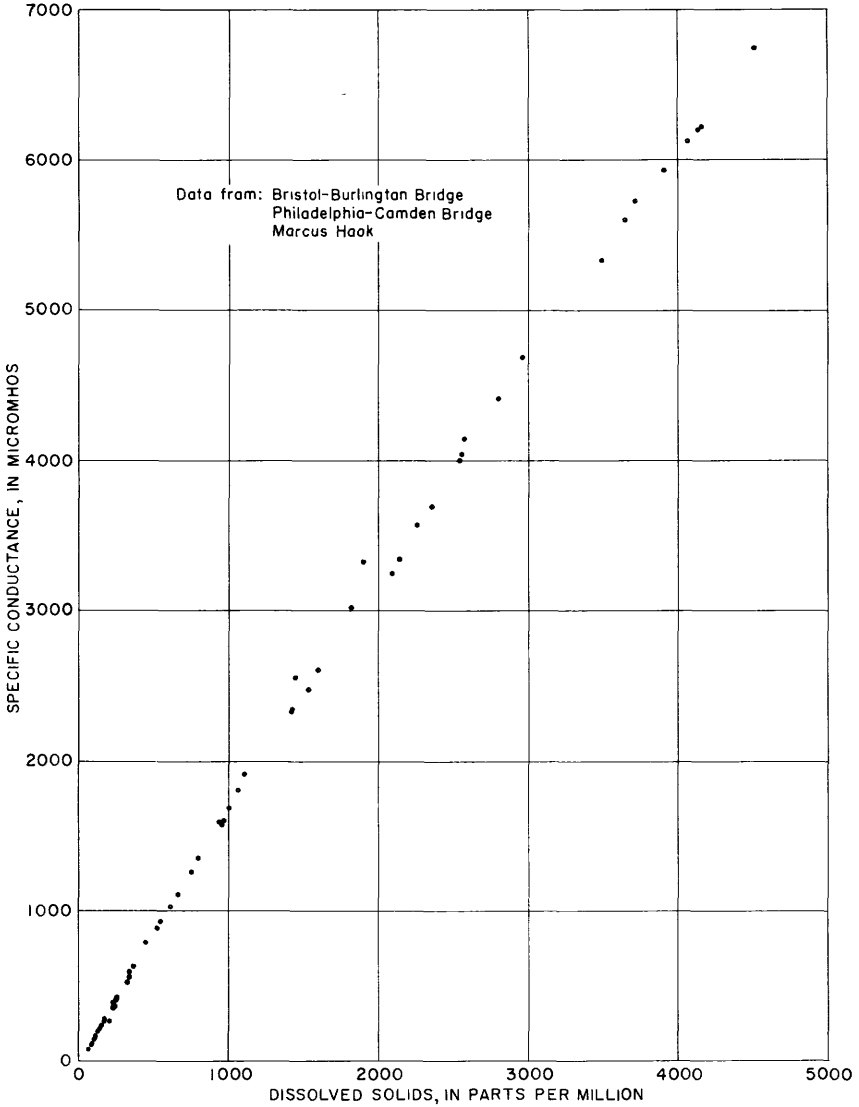

Figure 8. — The relation between electrical conductivity and dissolved solids (0-5,000 ppm).

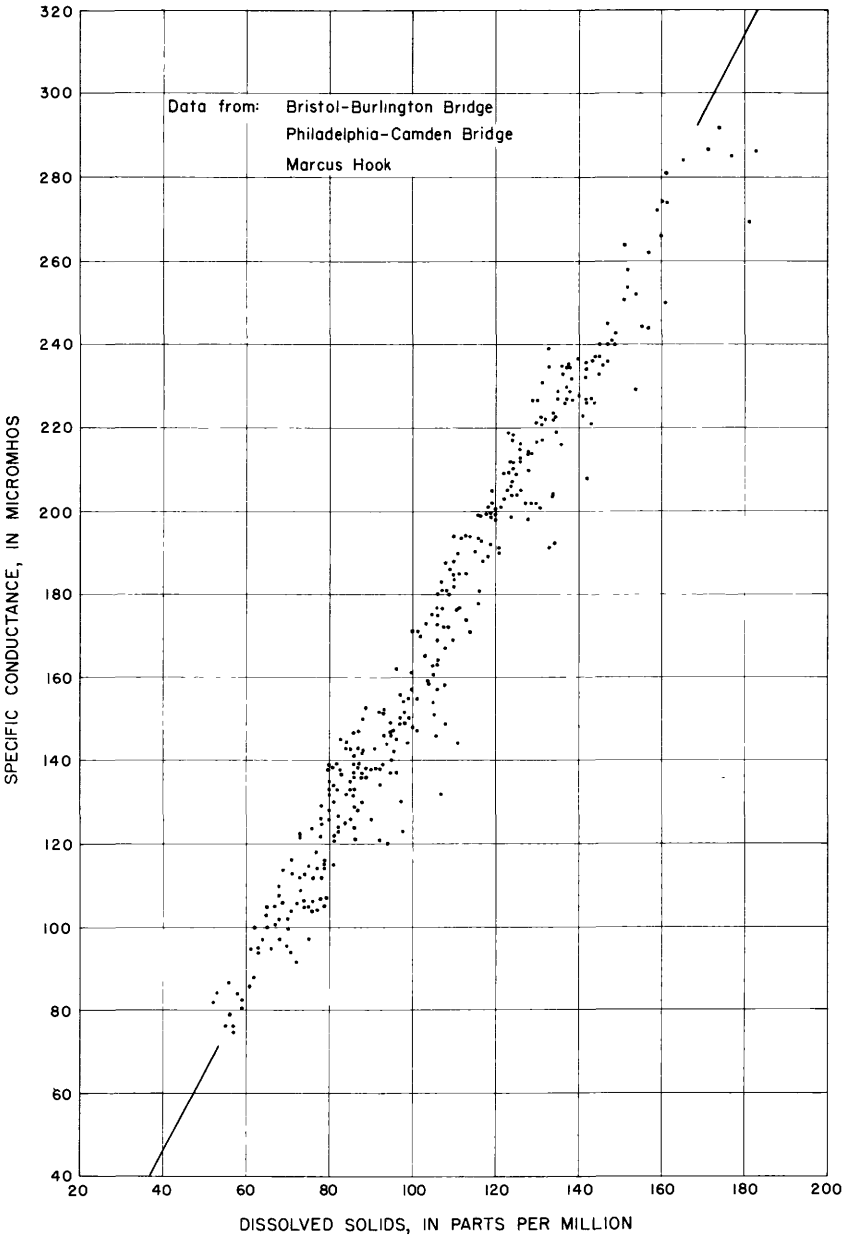

Figure 9. — The relation between electrical conductivity and dissolved solids (0-200 ppm).

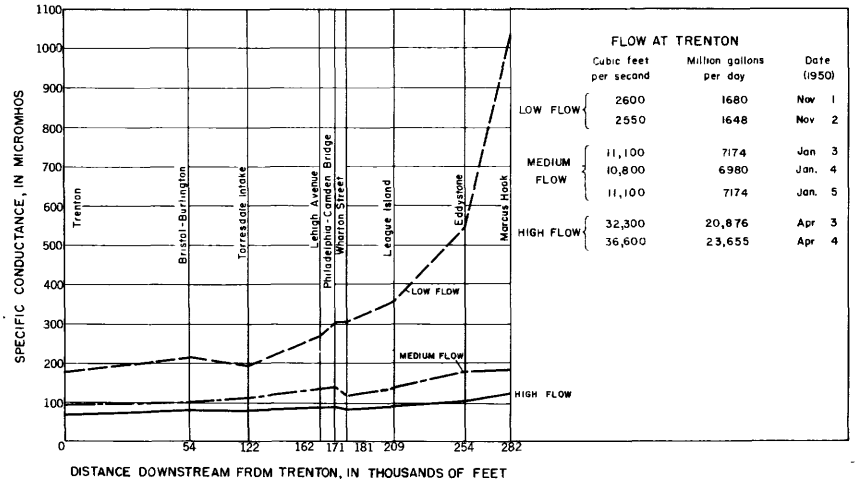

Figure 10. —Electrical conductivity at sampling stations for high, medium, and low flow rates.

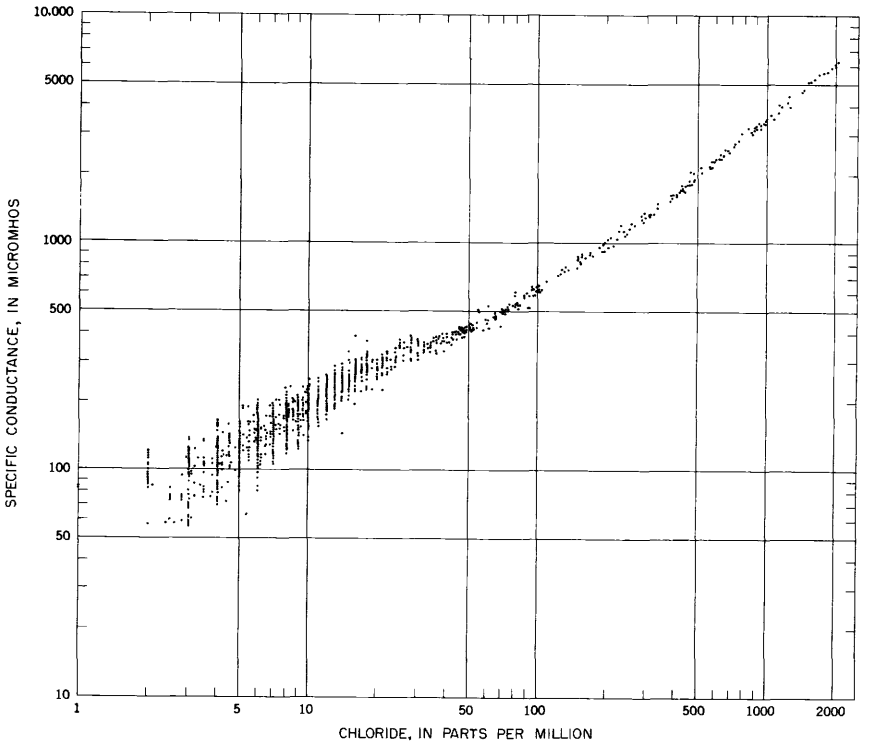

Figure 11. — The relation between electrical conductivity and chloride concentration (0-2,000 ppm).

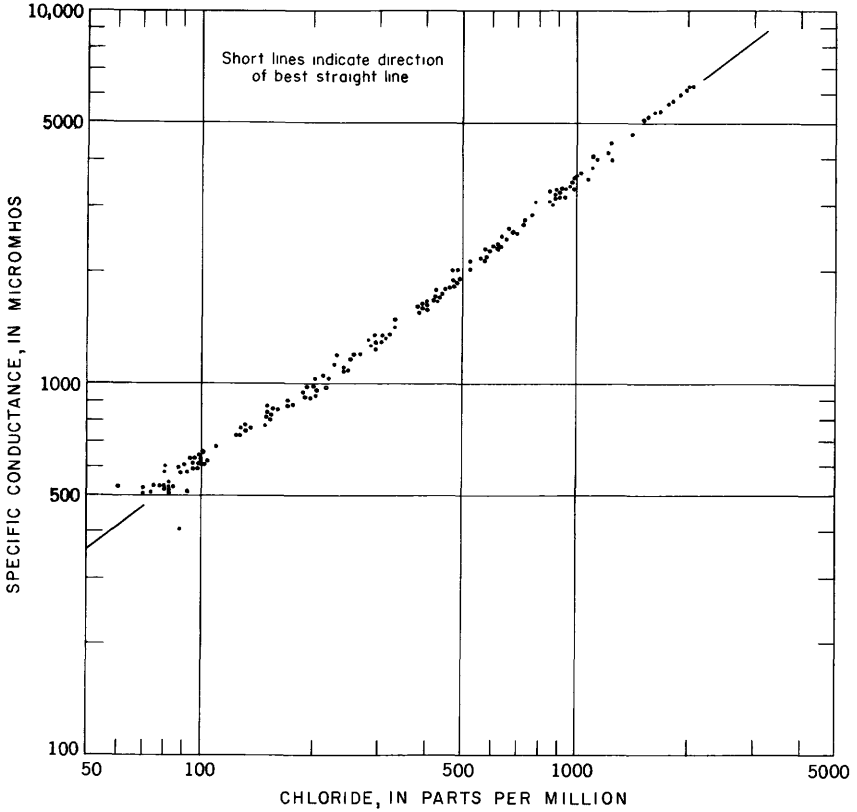

Figure 12. — The relation between electrical conductivity and chloride concentration (60 ppm and above).

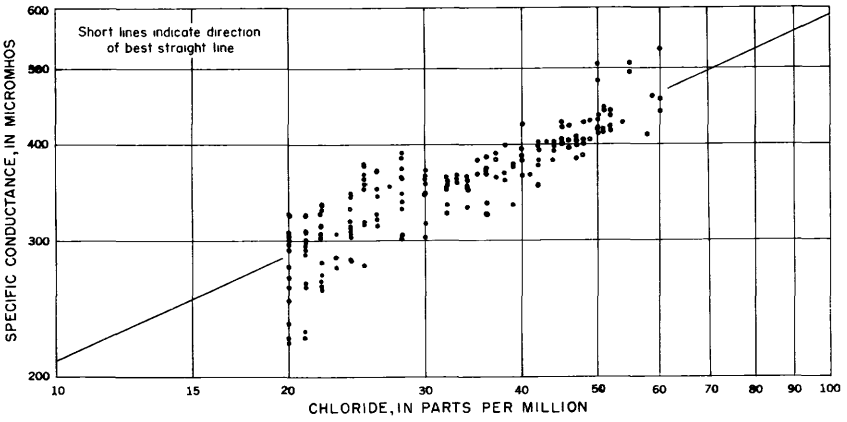

Figure 13. —The relation between electrical conductivity and chloride concentration (20 to 60 ppm).

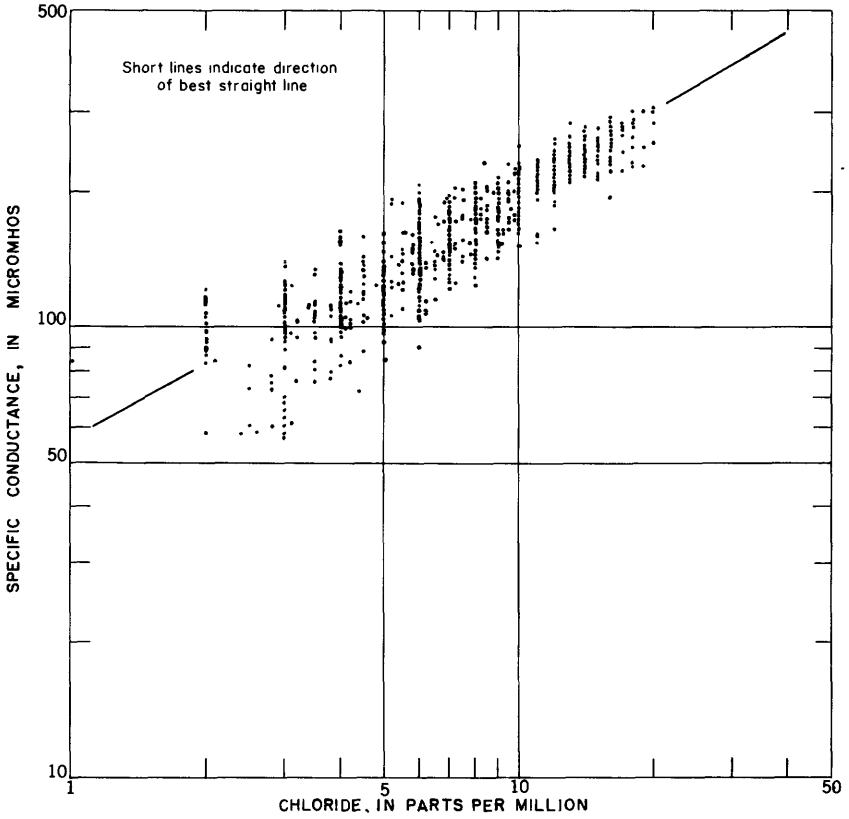

Figure 14.—The relation between electrical conductivity and chloride concentration (0-20 ppm).

The relation between chloride concentration and conductivity is more complex. The chloride ions no longer predominate; sulfate and bicarbonate ions are present in greater proportions, and their individual effect on conductivity is slightly different from that of the chloride ion. The experimental data for chloride concentrations from 20 to 60 ppm are plotted in figure 13, for concentrations of less than 20 ppm, in figure 14. In each case, the direction of the best straight line has been indicated. If concentration of chloride is below 20 ppm, the relation between electrical conductivity and chloride concentration depends largely on the bicarbonate concentration. This is demonstrated in figure 15 for three ranges of bicarbonate concentration. As the concentration

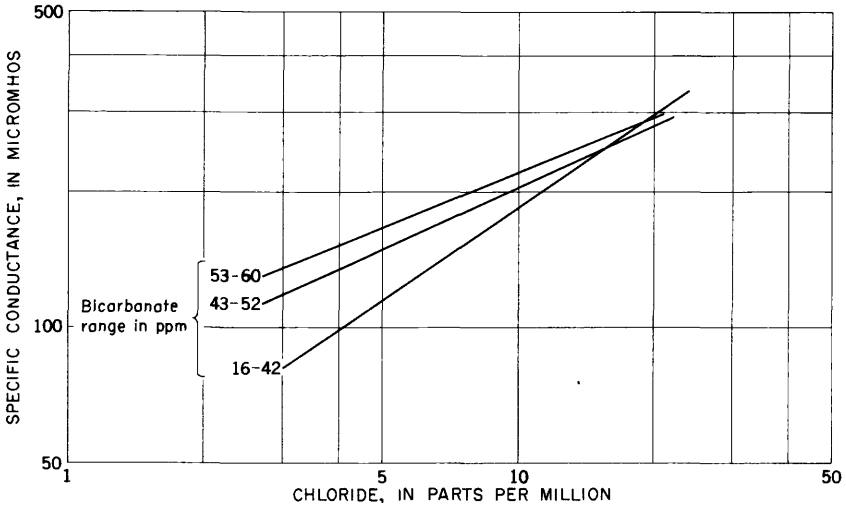

Figure 15. — The relation between electrical conductivity and chloride concentration at three ranges of bicarbonate concentration.

of chloride ions nears 20 ppm the effect of the bicarbonate ions diminishes.

The concentration of sulfate (ppm) has been plotted against the specific conductance (micromhos) (fig. 16). The conductivity of water increases as the concentration of sulfate ion increases. The bar graph of cations and anions indicates that the sulfate concentration increases downstream from Trenton to Marcus Hook at all flow rates (see fig. 6). This increase in sulfate concentration is especially evident at low-flow rate. In the Delaware River above Philadelphia, the concentration of sulfate expressed in equivalents per million usually exceeds that of chloride. As a result, the concentration of sulfate here has a greater effect upon the conductivity than does the concentration of chloride. In the lower reaches of the Delaware River when saline invasion upstream takes place, the concentration of chloride ions, exceeds the equivalent concentration of sulfate ions because there is approximately 10 times as many equivalents of chloride in the ocean water as of sulfate.

It is important to understand that all these relations pertain to the Delaware River under normal conditions. Should a large slug of pollution be introduced into the river, the relation such as shown in figures 6 to 16 would not apply. In any case, they merely represent the experience of the period from August 1949 to December 1952, and estimates based on them will not have the reliability of actual chemical analyses.

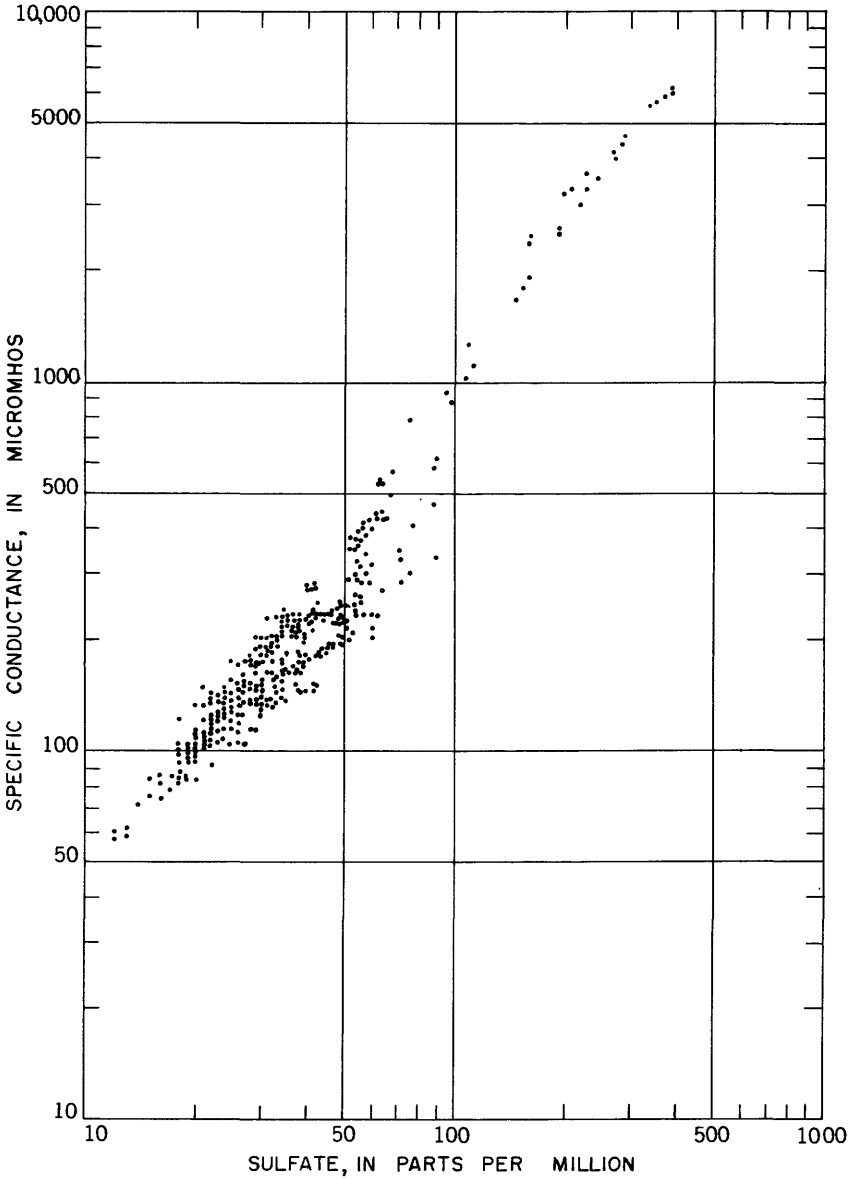

Figure 16. — The relation between electrical conductivity and sulfate concentration.

TEMPERATURE OF THE WATER

An adequate supply of water to be used for cooling purposes is often one of the essential considerations in selecting the site for an industrial plant. A survey by INCODEL in 1951 found that 91 percent of the water used in industries in this region was used for cooling purposes. This large percentage of use for cooling is due to the many stations generating electricity and the many oil refineries along the banks of the Delaware River in this area. The temperature of the water to be used in any plant is a critical design factor. Ground water, when available, is often a more suitable source of cooling-water because its temperature is low and uniform throughout the year. River water, however, is often the cheapest and most available source of cooling-water, but its average temperature is close to the temperature of the air. The temperature of water, of the Delaware River has exceeded 80° F in the summer months; thus industries have found it advantageous to use ground water in the summer and river water in the winter. In many industrial plants the use of cooling towers makes it possible to reuse the cooling-water many times before it is returned to the river; here smaller treatment facilities and waste disposal systems are adequate. In some plants it is efficient to use water for cooling purposes and afterwards to use the warmed water as a heating agent or in process work to save heating costs.

From October 1944 to June 1950, the temperature of the water in the Delaware River was measured daily at Morrisville, Pa. (and/or Trenton, N. J.). In June 1950 a Stevens continuous-recording thermograph was installed in the Trenton waterworks. The sensing element of the thermograph was located in the intake pipe of the waterworks, which pumps continuously. In March 1953, a continuous-recording resistance thermometer was installed in the Delaware River offshore from the Bristol waterworks. In addition, once each month the water temperature of all samples from the cross section at each sampling station is determined.

Figure 17 shows the frequencies with which various water temperatures occur and is based on random one-a-day readings during the period 1947-50 and on averages of thermograph readings during 1950-52. The curve shows that the water temperature was 75° F or above 20 percent of the time. On any one day, the temperature of the water at Trenton is generally within 2° F of the water temperature recorded at any of the eight sampling stations between Bristol and Marcus Hook. When the temperature of any sample from a cross section of the river is compared with the temperature of the water in the center of the river just below the surface, the difference is less than 1° F in 92 percent of the samples.

The temperatures of the water in the Delaware River at Trenton from October 1947 to September 1952 are illustrated in figure 18.

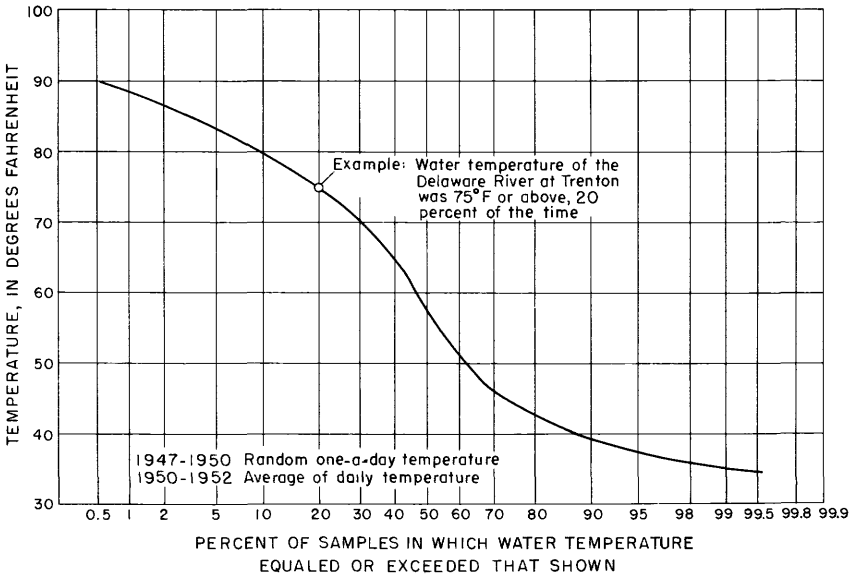

Figure 17.—Water temperature frequency curve, Trenton.

For each month are plotted four data: the maximum daily temperature, the minimum daily temperature, the average temperature for the month, and the range in temperature of the middle 50 percent of the readings for the month. The maximum daily temperature is the highest point on the vertical line, the minimum daily temperature is the lowest point on the vertical line, and the average temperature of the water for the month is represented by a short horizontal line. The highest 25 percent of the readings of the daily temperatures are between the top of the rectangle and the highest point on the vertical line, the lowest 25 percent are between the bottom of the rectangle and the bottom of the vertical line, the rectangle itself represents the middle 50 percent of the readings of the temperature during a month. The average temperature of the water in the Delaware River at Trenton from October 1947 to September 1952 is shown as a dashed horizontal line across the graph.

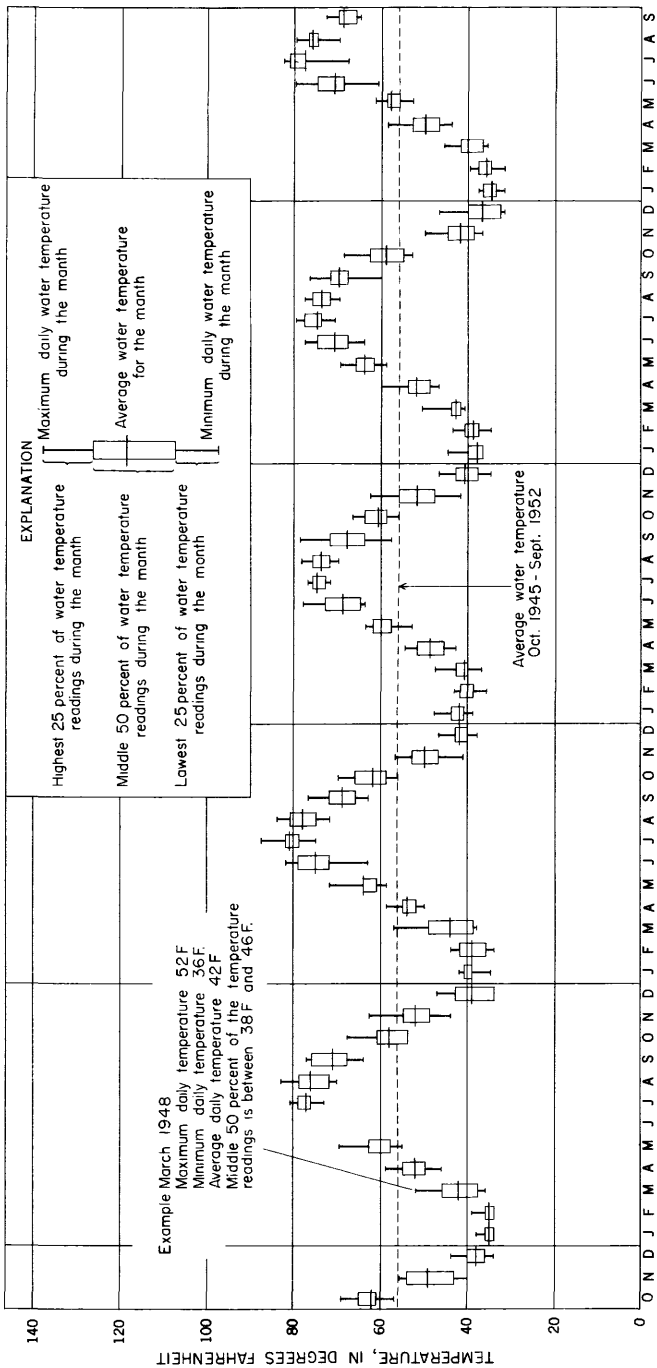

Figure 18.—Water temperatures at Trenton, 1947–52.

DISSOLVED OXYGEN AND BIOCHEMICAL OXYGEN DEMAND

A shallow stream containing pure water brought into contact with the air through turbulence will be saturated with oxygen, that is, no more oxygen will dissolve in the water when air is bubbled through it. Green plants require some oxygen to live; in the light they produce more oxygen than they consume, but in the dark they consume more oxygen than they produce. The dissolved oxygen may be consumed in respiration by fish and other animals and also by bacteria which decompose organic impurities in the water. Thus, organic pollutants require oxygen for decomposition. The dissolved oxygen content of a stream depends upon the balance between (1) consumption of oxygen by animals and plants and by organic pollutants and (2) replenishment of oxygen from the air and through the action of aquatic plants. Thus the dissolved oxygen content (D. O.) of water, in parts per million, or its percentage saturation with oxygen is one index of the stream's ability to destroy polluting material. If the amount of oxygen required to oxidize the pollutants exceeds the quantity of dissolved oxygen present, and additional oxygen is not supplied to the stream by aeration or plant activity, the oxygen content of the water may be so depleted that putrefaction occurs, with accompanying odors and destruction of fish and green plantlife. The restoration of oxygen to a deep, quiet-flowing stream, such as the Delaware River below Trenton, is less rapid than to a shallow, fast-moving, turbulent stream, both because of the smaller surface of contact of water and air and because of smaller effect of green plantlife in a deep river as compared to a shallower stream in which the sunlight can penetrate to the bottom.

The biochemical oxygen demand (B. O. D.) is a measure of the quantity of oxygen required to decompose organic wastes through bacterial oxidation. In this test the water sample to be analyzed is mixed with water containing an excess of oxygen and bacteria of the type present in the stream and incubated for 5 days at 20° C, during which time the bacteria use the dissolved oxygen to oxidize the organic matter. Analysis of the sample before and after the 5-day period shows the amount of oxygen consumed under these conditions and is therefore a measure of the rate at which the organic material consumes oxygen.

Figure 19 shows that the dissolved oxygen content of the water is depleted as it moves downstream. The percent of saturation of the water with oxygen in the Delaware River is plotted for each of the sampling stations for March 1–2, May 1–2, and September 5-6, 1951. In each case the percent of saturation with oxygen decreases as the water moves downstream. For example, in May, when the rate of flow of the river was approximately average, the water at Bristol-Burlington was 90 percent saturated; the oxygen was rapidly consumed in the next 25 miles of river, falling to 28

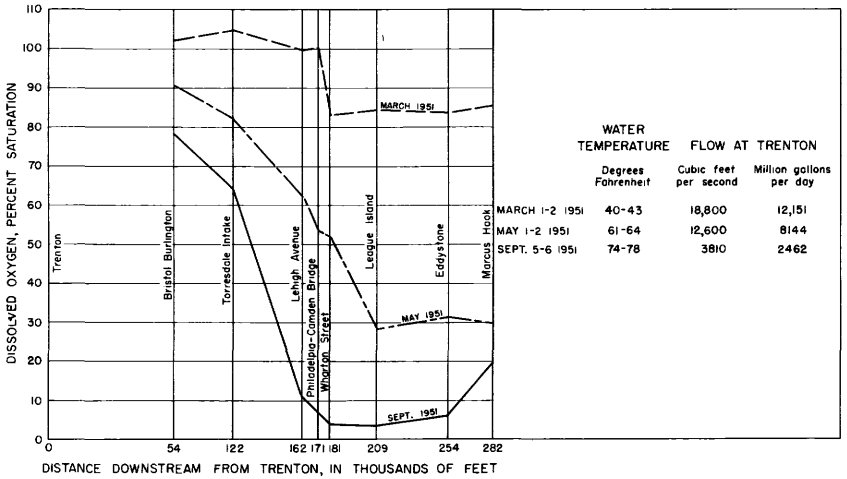

Figure 19. —Dissolved oxygen as percent saturation at sampling stations for selected days.

percent of saturation at League Island. In March when the flow rate was about 60 percent above the average, the river remained completely saturated from Bristol-Burlington to the Philadelphia-Camden Bridge, but decreased to 83 percent of saturation in the 2 miles between the Philadelphia-Camden Bridge and Wharton Street, with little further change from there to Marcus Hook. In September when the flow rate was about one-third of the average, the dissolved oxygen content at Bristol-Burlington was 78 percent of saturation, falling to 11 percent at Lehigh Avenue and 4 percent at Wharton Street. From there some increase took place (19 percent saturation at Marcus Hook). In considering these data, it should be noted that as the temperature of the water increases, less oxygen is required to saturate the water 100 percent. For example, water at 41° F contains 12.8 ppm or 107 pounds of dissolved oxygen per million gallons when saturated, whereas water at 76° F requires only 8.5 ppm or 71 pounds per million gallons for 100 percent of saturation, because warmer water can dissolve less oxygen.

The New Jersey State Board of Health and the Pennsylvania Sanitary Water Board are attempting to restore to 50 percent of saturation the waters of the portion of the Delaware River from the Pennypack Creek (Torresdale Intake) to Marcus Hook. In table 4 are the average percentage saturation with oxygen and the percentage of samples which have less than 50 percent saturation with oxygen for the calendar years 1950, 1951, and 1952 for this portion of the river. Examination of the data reveals that the average con-

tent of dissolved oxygen has been increasing and the percentage of samples under 50 percent saturation has been decreasing for each of the three years. This apparent improvement in the river may be due to the more thorough treatment of wastes or to the increasing rate of flow of the river—especially from August to October—during the period covered by this report (see table 4). A greater volume of water flowing in the river would be expected to bring about an improvement both because of the greater quantity of oxygen available and because of increased dilution.

In figure 20 are plotted the once-a-month determinations of dissolved oxygen and biochemical oxygen demand for each of the eight sampling stations for the period August 1949 to December 1952. If the amount of dissolved oxygen exceeds the biochemical oxygen demand, sufficient oxygen is present to oxidize the organic and inorganic matter present in water. At all times during the period of record sufficient oxygen was present to satisfy the biochemical oxygen demand at Bristol, Pa. At all other stations there were occasions when the biochemical oxygen demand exceeded the dissolved oxygen. These periods of oxygen deficiency (illustrated by shaded areas on the graph) occurred between May and December.

Table 4.—*Analyses of dissolved oxygen from sampling stations between Torresdale and Marcus Hook, 1950–52, and the average monthly flow rate*

	Jan. to Dec. 1950	Jan. to Dec. 1951	Jan. to Dec. 1952
Total Samples	82	77	84
Average Dissolved Oxygen in percent	45.9	51.4	55.2
Number of samples under 50 percent of saturation	40	36	27
Percent of samples under 50 percent of saturation	49	47	32
Average monthly river flow, Jan.-Dec. (cfs)	13,397	15,190	17,557
(mgd)	8,659	9,818	13,474
Average monthly river flow, Aug.-Oct. (cfs)	3,842	5,345	6,662
(mgd)	2,483	3,455	4,306

There are several possible reasons for the oxygen deficiency in the warmer months of the year: (1) because the water is warmer, less oxygen is dissolved in it, (2) the chemical and biological reactions that consume oxygen proceed faster at the higher temperatures so that the oxygen is more rapidly consumed, and (3) in the late summer months less water flows in the river and consequently the total oxygen carrying capacity is less.

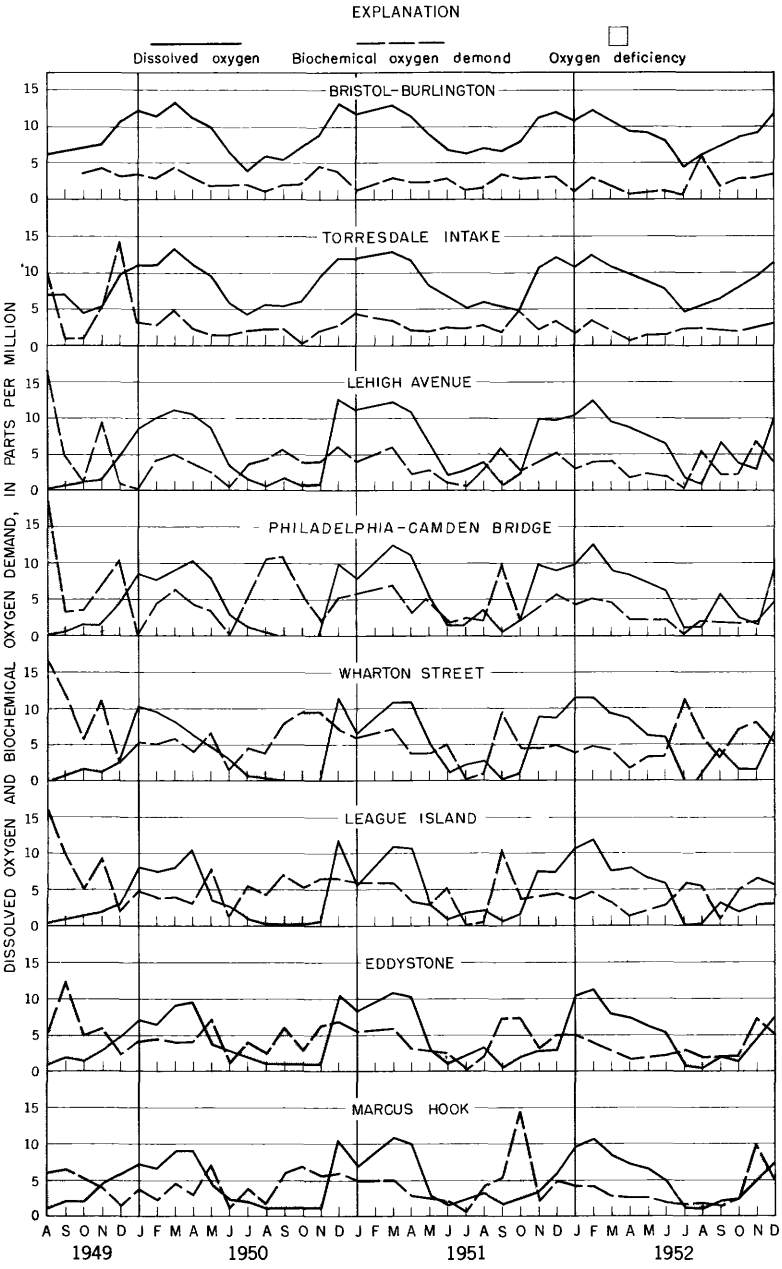

Figure 20.—Relation between dissolved oxygen and biochemical oxygen demand, August 1949 to December 1952.

SUSPENDED SEDIMENT

By J. P. Eiler

The measurement of suspended-sediment discharge in the Delaware River at Trenton, was begun by the U. S. Geological Survey on September 1, 1949. The sampling station is located near the midpoint of the Calhoun Street Bridge, which connects Trenton, N. J., and Morrisville, Pa. The measurement of suspended-sediment discharge is dependent on a continuous record of water discharge on which to base calculations of the amount of sediment in transport at all times. The streamflow recording station from which this continuous record of water discharge is obtained is located 200 feet upstream from the bridge.

The measurement of suspended-sediment discharge in the Schuylkill River, which joins the Delaware River at Philadelphia, was begun in the fall of 1947 as a part of the Schuylkill River Restoration Project of the Pennsylvania Department of Forests and Waters. The downstream station at Philadelphia, located near midpoint of the Green Lane Avenue bridge in the Manayunk section of Philadelphia, is currently being operated, and its record extends without break from November 16, 1947. The streamflow recording station is located approximately 5 miles downstream and just above Fairmount Dam.

The sediment-sampling equipment consists of a U. S. D-43 suspended-sediment sampler, which weighs 50 pounds; a reel for lowering and raising the sampler; and a housing to protect the sampler and reel. The samples are collected by a resident observer.

Each suspended-sediment sample represents only the concentration of sediment in the stream at the time of sampling and in the vertical in which the sample is taken. The concentration is, however, continuously varying with time in natural streams. If a continuous-concentration-time relation of reasonable accuracy is to be developed, samples must be taken at intervals frequent enough to define the pattern of variation of the concentration. If the streamflow is changing slowly, the sediment concentration also is likely to be changing slowly. Conversely, if the streamflow is changing rapidly, the sediment concentration usually is changing rapidly also, and frequent sampling will be required. The greatest rate of change of sediment concentration very often occurs at the beginning of a rise or shortly thereafter. Samples were collected once daily at the stations when the flow was uniform. During periods of rapidly changing flow samples were collected at intervals of 2 hours on the rise and 4 to 6 hours on the fall.

It is recognized that a sample taken in a single vertical may not represent the average concentration in the cross section of the stream. In order to determine cross-sectional differences additional samples were collected at monthly intervals and at times of high flow at five or six verticals in the cross section, each sample representing an equal part of flow. The ratio of the average of these cross-section samples to the concentration obtained at the regular sampling station at the same time was used as a correction factor to apply to the resident observer's samples. The correction factor was applied on the basis of time or gage height, whichever controlled.

The sample concentrations are plotted against the time and a smooth-line curve is drawn through the plotted points following in general the configuration of the streamflow hydrograph. Mean-daily values of sediment concentration are computed from this graph which together with values of daily water-discharge are used to compute the daily sediment loads for periods of fairly uniform flow and concentration. For periods of rapidly changing stage and concentration, daily sediment discharges were obtained by adding the discharges computed for subdivisions of the day.

Tables 16 and 17 are tabulations for the Delaware River at Trenton, N. J. and the Schuylkill River at Philadelphia, Pa. of mean-daily water discharge in cubic feet per second and monthly totals of water discharge in cfs-days, mean-daily suspended-sediment concentration in parts per million, daily suspended-sediment load in tons per day, and monthly totals of suspended load in tons. Table 18 is a tabulation of particle-size analyses of selected suspended-sediment samples for these stations.

Composite suspended-sediment concentrations of five grab samples taken at approximately 3 feet below the surface of the river at each of the eight monthly sampling stations between Bristol and Marcus Hook are given in tables 7-14. These concentrations are representative of only the surface water for this reach of the river and as approximations of the overall concentrations should be studied only in relation to each other.

There is a general downstream increase in the sediment concentration particularly at the Eddystone and Marcus Hook stations which are downstream from the junction of the Schuylkill River which carries a heavy load of sediment (table 17). Industrial and municipal wastes may have a cumulative downstream effect on concentration of suspended sediment also.

SUMMARY

The mineral content of the water in the Delaware River increases downstream from Trenton to Marcus Hook; from Trenton to Philadel-

phia the increase is uniform and relatively slight at all rates of flow. During protracted periods of low rate of flow, salt water moves up the river along the river bottom and mixes partly with the river water as a result of currents arising from tidal action, river flow and navigation. Under such conditions of saline invasion the chloride content increases sharply at Eddystone and at Marcus Hook, and the composition of the downstream river water tends to approach the composition of the highly mineralized water of the Atlantic Ocean. Saline invasion is often accompanied by a higher concentration of dissolved solids near the bottom of the river than near the surface. Upstream and at higher flow rates

Table 5.—*Maximum and minimum values in the specific conductance and chemical analyses of water of the Delaware River, Trenton, N. J. to Marcus Hook, Pa.*

[Based on once-a-month sampling August 1949 to December 1952]

	Maximum values								
	Station[1]								
	Trenton	1	2	3	4	5	6	7	8
Specific conductance (micromhos)	245	252	250	417	442	523	523	3,530	6,230
Chemical analysis (ppm)									
Silica	9.7	7.3	.....	.....	7.4	.....	.....	.....	14
Iron	.23	.28	.....	.....	.32	.....	.....	.....	.48
Calcium	25	22	.....	.....	26	.....	.....	.....	75
Magnesium	7.4	8.9	.....	.....	11	.....	.....	.....	147
Sodium	.....	15	.....	.....	38	.....	.....	.....	1,080
Bicarbonate	61	63	.....	.....	64	.....	.....	.....	71
Sulfate	31	42	.....	.....	64	.....	.....	.....	382
Chloride	10	14	16	50	52	74	196	995	2,020
Fluoride	.2	.2	.....	.....	.3	.....	.....	.....	.9
Nitrate	4.4	11	.....	.....	18	.....	.....	.....	19
Dissolved solids	119	209	.....	.....	248	.....	.....	.....	4,150
Hardness as $CaCO_3$	83	89	.....	.....	105	.....	.....	.....	792

	Minimum values								
	Station								
	Trenton	1	2	3	4	5	6	7	8
Specific conductance (micromhos)	68.2	58	57	56	58	66	69	74	82
Chemical analysis (ppm)									
Silica	1.9	1.4	.....	.....	1.9	.....	.....	.....	1.3
Iron	.01	.00	.....	.....	.01	.....	.....	.....	.01
Calcium	8.3	7.9	.....	.....	8.0	.....	.....	.....	10
Magnesium	2.6	2.6	.....	.....	2.6	.....	.....	.....	3.5
Sodium	[2].07	[2].6	.....	.....	[2].3	.....	.....	.....	[2]2.4
Bicarbonate	15	11	.....	.....	10	.....	.....	.....	10
Sulfate	12	12	.....	.....	13	.....	.....	.....	18
Chloride	2.0	1.0	2.0	3.0	2.8	2.0	4.0	4.0	3.0
Fluoride	.0	.0	.....	.....	.0	.....	.....	.....	.0
Nitrate	1.0	1.2	.....	.....	.1	.....	.....	.....	.8
Dissolved solids	53	52	.....	.....	59	.....	.....	.....	73
Hardness as $CaCO_3$	25	23	.....	.....	22	.....	.....	.....	32

[1]Numbered stations are those located on figure 1.
[2]Less than this value.

there is little difference in the composition of the water near the surface and near the bottom of the river. The conductivity of the water is usually slightly higher near the Pennsylvania shoreline than near the New Jersey side, indicating a higher mineral content in the water.

Table 5 shows the maximum and minimum concentrations of the chemical constituents of the river water during this investigation. In the Delaware River during normal flow conditions there is more calcium than magnesium and more sulfate than chloride in the water. These conditions are reversed downstream from Philadelphia when the flow is low and the ocean water mixes with the river water. During these periods the amount of magnesium dissolved is greater than the amount of calcium and the amount of chloride is greater than the amount of sulfate, as is the case with ocean water.

Saline invasion occurs only during the late summer months when the volume of water flowing downstream is low. Aside from this phenomenon the water in this reach of the river is of adequate quality, after treatment, to meet the needs of many municipalities and industries. During the period covered by this report the quality of the river water, from a sanitary viewpoint, has improved; the number of samples with a low content of dissolved oxygen has decreased and, toward the end of the period, except at League Island and Wharton Street, there were fewer samples having an oxygen deficiency. Oxygen deficiency at these two stations may occur less frequently after the city of Philadelphia Southwest Sewage Treatment Plant is placed in operation. The apparent improvement in sanitary quality may be due to the more thorough treatment of wastes as well as to the increasing flow rate of the river during the period covered by this report. A greater volume of water flowing in the river would be expected to bring about improved stream conditions both because of the greater quantity of oxygen available and because of dilution of wastes. The relative importance of these two factors can be determined only from an investigation covering a longer period of time.

The temperature of the water in the Delaware River is characterized by a seasonal variation. The maximum temperatures are reached in July and August and the minimum temperatures are reached in January and February. The observed maximum temperature of 88° F was recorded in July of 1949 and the minimum of 32° F in January 1952. The temperature of the water from 1947–1952 was 75° F or more, 20 percent of the time. The temperature recorded at Trenton is generally within 2° F of the water temperature measured elsewhere downstream to Marcus Hook. Cross-sectional sampling indicates that there is little difference in temperature between the Pennsylvania shoreline and the New Jersey shoreline. The temperature of the water at the bottom of

the river is generally within one degree of the temperature at the surface of the water.

There is a general downstream increase in the concentration of suspended sediment, particularly between League Island and Eddystone (table 17). Industrial and municipal wastes may have a cumulative downstream effect upon the sediment concentration of the Delaware River.

The amount of precipitation in the area above Trenton, the loss or gain of water from ground-water aquifers along the Delaware River between Trenton and Marcus Hook, the amount of water flowing in the Delaware River and its tributaries, the range and stage of tides, and the pollution load of the river are factors which influence the quality of the water. As the natural forces which cause variation in the quality of the water cannot be controlled it will be necessary to make further studies of the river data in order to predict quantitative changes in the quality of the water. The data obtained to date, although they do not supply the answer to many of the above problems, will be of value to industries, agencies, and consultants who have an interest in the quality of the water in the Delaware River between Trenton and Marcus Hook.

GLOSSARY

Aquifer: a water-bearing geological stratum, a natural reservoir of ground water.

Biochemical oxygen demand, or *B. O. D.:* a measure of the amount of oxygen required to destroy organic wastes by bacterial action, thus it is a measure of the degree of pollution of stream water.

cfs, cubic feet per second: see *discharge rate.* The rate of flow in a stream whose channel is 1 square foot in cross section and whose average velocity is 1 foot per second is 1 cfs.

cfsm, cubic feet per second per square mile: the average number of cubic feet of flow per second from each square mile of area drained.

Discharge rate, or *flow rate:* the rate of flow of water in the stream, usually expressed in cubic feet per second (cfs) or million gallons per day (mgd). A stream flowing at the rate of 1 cubic foot per second (1 cfs) discharges 646,317 gallons in a 24-hour day. The volume of flow is often expressed in cfs-days. One cfs-day is the volume of water represented by a flow of a cubic foot of water per second for 24 hours.

Dissolved oxygen, or *D. O.:* the weight of oxygen actually dissolved in a sample of water, expressed in parts per million.

Drainage area, or *catchment area:* the area drained by a stream and its tributaries.

epm, equivalents per million: the number of chemical equivalents of a chemical substance per million parts by weight of solution. It is numerically equal to the milliequivalents per liter of water at 4° C.

Fresh water: water of relatively low dissolved solids content. As used in this report it refers to water flowing down the Delaware River, or flowing into the river from its various tributaries, which contains no ocean water.

Ground water: the water derived from underground sources; it is tapped by springs, wells, shafts, or infiltration galleries.

Hardness: the calcium carbonate ($CaCO_3$) equivalent of calcium and magnesium and of all other individually-determined cations having similar soap-consuming and incrusting properties. Hard water requires an excessive amount of soap to form a lather, and is the source of scale deposits in steam boilers. Hardness expressed as calcium carbonate is 50 times the sum of the number of equivalents of calcium and magnesium.

Hydrograph: a diagram in which the discharge rate of a stream is plotted as ordinate against the time as abscissa (see fig. 2).

mgd, million gallons per day: a stream discharging 1 mgd flows at a rate of 1.547 cfs.

pH: a measure of the acidity or alkalinity of water. A pH of 7.0 is neutral, an acid solution has a pH lower than 7.0, while a basic or alkaline solution has a pH higher than 7.0. For example, a solution containing 4 pounds of sulfuric acid in 1,000 gallons of water has a pH of 2, while a solution of $3\frac{1}{2}$ pounds of caustic soda in 1,000 gallons of water has a pH of 12.

ppm, parts per million: the number of parts by weight of a substance in a million parts by weight of water; the number of milligrams of the substance in 1,000 grams of water.

Saline invasion: the upstream movement of salty water from the ocean or bay, which results in the fresh water becoming saline. In the lower reaches of the Delaware River, as in other estuaries, a saline invasion is most likely to take place at the period of low streamflow (usually in late summer or fall).

Salinity: the degree of saltiness or content of natural salts in the water.

Sediment concentration: the ratio of weight of dry sediment to total weight of the water-sediment mixture, usually expressed in parts per million (ppm).

Sediment load or *discharge:* the total dry weight of sediment transported past a given point in a given time, usually expressed in tons per day.

Suspended sediment: the material moving in suspension in the water being kept from settling by the upward components of the turbulent currents or by colloidal suspension.

Vertical: an imaginary line extending from a point in a stream surface vertically downward to the bed of the stream.

Water year: a period of 12 months beginning October 1, and ending September 30, the following year.

METHODS OF ANALYSES

Determination or measurement	*Method*
Temperature	Read to nearest 1° F, either with field thermometer or on the thermograph.
pH	Electrometric with glass electrodes.
Specific conductance	Wheatstone bridge; cell with platinum electrodes calibrated against standard potassium chloride at 25° C.
Dissolved oxygen	Titration with sodium thiosulfate in presence of starch.
Biochemical oxygen demand	Incubation at 20° C for 5 days.
Silica	Spectrophotometer measurement of color developed by addition of ammonium molybdate.
Iron	August 1949 to May 6, 1952, spectrophotometer measurement of color developed by addition of thiocyanate in hydrochloric acid solution. May 6, 1952 to date, spectrophotometer measurement of the color developed by the addition of 2, 2' dipyridine solution.
Calcium	Calcium is precipitated as calcium oxalate. The precipitate is redissolved and the oxalate ion is titrated with potassium permanganate.
Magnesium	Determined gravimetrically as magnesium pyrophosphate.
Sodium	August 1949 to February 2, 1952, determined gravimetrically as the triple salt of sodium zinc uranyl-zinc acetate. February 2, 1952 to date of report, determined with flame photometer.
Bicarbonate	Titration with standard sulfuric acid in presence of methyl red indicator.
Sulfate	Determined gravimetrically as barium sulfate.
Chloride	Titrated with silver nitrate in the presence of potassium chromate.
Fluoride	Compared colorometrically with standards of zirconium nitrate-alizarin red solution.

Determination or measurement	*Method*
Nitrate	Spectrophotometer measurement of the color developed by the addition of phenoldisulphonic acid and ammonium hydroxide.
Dissolved solids	Residue upon evaporation of solution and heating at 180° F for 1 hour in platinum dish.
Hardness	Calculated from the equivalent calcium and magnesium.
Sediment concentration	Determined by evaporation or filtration.
Particle size	Determined by wet sieving or by the decantation method of sedimentary analysis or by a combination of these methods. In some analyses the bottom withdrawal tube method of sedimentary analysis was used in place of the decantation method.

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Table 6.--DELAWARE RIVER AT TRENTON, N. J. (MORRISVILLE, PA.)

Chemical analyses, in parts per million, water year October 1949 to September 1950

Date of collection	Mean discharge (cfs)	Temperature (° F)	Color	pH	Specific conductance (micromhos at 25° C)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																		Total	Noncarbonate
Oct. 1-10, 1949	3,312	64	6	6.9	182							52	27	7.8		2.5		68	25
Oct. 11-20	2,559	64	6	6.9	189							56	28	8.4		2.2		74	28
Oct. 21-31	2,510	56	7	7.0	205							59	31	10		2.5		83	35
Nov. 1-10	3,825	52	7	6.9	181							49	27	10		2.4		68	28
Nov. 11-20	5,289	51	10	6.9	147							38	25	5.6		2.9		56	25
Nov. 21-30	4,868	40	10	7.1	129							34	21	5.0		3.1		50	22
Dec. 1-10	4,292	36	8	7.1	141							36	22	5.9		3.5		54	24
Dec. 11-14	8,678	36	8	7.2	155							39	26	6.5		4.0		58	26
Dec. 15-20	16,570	38	8	6.5	84.9							16	16	2.8		3.3		32	19
Dec. 21-31	14,730	40	8	6.8	101							22	19	3.5		3.7		38	20
Jan. 1-10, 1950	14,570	41	7	6.7	97.3							22	18	3.5		3.2		36	18
Jan. 11-20	17,420	37	7	6.7	89.6							18	18	3.5		3.3		34	19
Jan. 21-31	10,000	43	7	6.9	109							25	19	4.2		3.0		42	22
Feb. 1-10	10,880	37	4	7.1	125							29	23	4.5		3.8		47	23
Feb. 11-20	17,250	37	8	6.9	124							27	24	4.4		4.4		47	25
Feb. 21-28	10,200	34	4	7.2	136							32	24	4.5		4.1		53	27
Mar. 1-10	11,360	36	6	7.1	141							36	24	5.0		3.5		56	26
Mar. 11-20	19,520	37	8	7.0	99.4							24	18	3.4		2.9		37	17
Mar. 21-31	33,540	44	6	7.3	107							26	18	3.1		3.7		41	20
Apr. 1-10	42,400	42	4	5.9	68.2							16	12	3.6		1.7		25	12
Apr. 11-20	15,450	47	4	7.3	97.4							25	16	3.0		2.3		37	16
Apr. 21-30	15,230	51	7	7.6	95.9							26	15	2.9		2.0		35	14
May 1-10	14,230	55	8	7.0	100							28	17	3.0		1.6		38	15
May 11-20	10,760	60	8	7.0	112							34	18	3.6		1.7		43	15
May 21-31	15,490	61	10	7.0	101							29	17	2.9		1.8		39	15
June 1-10.....	15,760	66	9	7.1	113							35	17	3.2		1.7		35	6
June 11-20	10,350	68	7	7.0	127							40	18	4.0		1.6		42	9
June 21-30	8,548	72	6	7.0	126							41	17	4.2		2.0		42	8
July 1-10	6,557	76	6	7.0	146							43	21	4.6		1.8		50	15
July 11-20	9,779	74	13	7.0	139							38	22	4.4		3.7		55	24
July 21-31	6,494	75	8	7.1	146							44	22	4.9		1.7		58	22
Aug. 1-10	5,805	74	6	7.1	150							43	22	4.9		2.5		57	22
Aug. 11-20	3,810	76	7	7.1	169							50	24	6.0		2.6		65	24
Aug. 21-31	5,109	75	7	7.1	157							43	21	6.0		2.8		60	25
Sept. 1-10	4,493	72	6	7.3	162							50	23	6.0		2.8		62	21
Sept. 11-20	5,863	67	8	7.4	174							52	24	6.0		2.8		65	22
Sept. 21-30	3,807	62	5	7.6	178							56	25	7.2		2.1		66	20
Average	11,160	54	7	--	133							36	21	4.9		2.7		50	20

Table 6. --DELAWARE RIVER AT TRENTON, N. J. (MORRISVILLE, PA.)--Continued

Chemical analyses, in parts per million, water year October 1950 to September 1951

Date of collection	Mean discharge (cfs)	Temperature (° F.)	Color	pH	Specific conductance (micromhos at 25° C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																		Total	Noncarbonate
Oct. 1-10, 1950	2,892	64	10	7.3	183	4.3	0.03	18	6.1	7.6		57	26	7.2	0.1	3.0	114	70	23
Oct. 11-20	3,540	61	8	7.3	184	5.9	.02	19	5.9	6.4		54	28	6.6	.2	2.8	119	72	27
Oct. 21-31	3,026	59	10	7.3	185	5.2	.02	18	6.5	6.8		54	27	7.9	.1	3.3	114	72	27
Nov. 1-10	4,705	59	10	7.1	174	4.4	.03	17	6.1	6.9		50	28	6.6	.1	3.4	106	68	27
Nov. 11-20	4,296	50	8	7.2	143	3.4	.03	14	4.8	6.5		42	23	5.5	.1	3.0	92	55	20
Nov. 21-26	17,305	49	4	7.2	154	3.2	.10	16	5.3	6.4		46	26	6.0	.0	3.0	92	62	24
Nov. 27-30	58,450	44	20	7.0	79.1	3.6	.09	8.3	2.7	3.4		19	16	3.0	.0	3.3	64	32	16
Dec. 1-10	47,420	43	16	7.0	88.1	4.0	.23	8.8	3.0	2.9		18	19	2.9	.0	2.5	59	34	20
Dec. 11-20	22,190	41	7	7.1	98.1	4.2	.09	9.8	3.4	4.2		25	20	3.0	.0	2.4	62	38	18
Dec. 21-31	10,118	38	5	7.2	127	4.7	.09	13	4.7	4.9		37	23	4.0	.0	3.3	78	52	22
Jan. 1-10, 1951	14,117	39	12	7.0	113	4.4	.06	12	3.0	4.4		27	20	4.5	.0	3.2	72	42	20
Jan. 11-20	15,640	39	16	7.0	111	4.4	.10	11	3.5	5.6		26	23	4.5	.0	3.0	70	42	21
Jan. 21-31	25,082	39	16	7.1	96.1	4.2	.06	8.5	2.8	5.0		21	18	3.8	.1	2.4	62	33	16
Feb. 1-10	28,380	37	7	6.9	102	5.3	.06	11	3.2	2.2		26	16	3.2	.2	3.0	68	41	19
Feb. 11-20	23,580	39	4	6.9	100	4.4	.10	9.5	3.2	2.4		22	15	4.8	.0	2.1	68	37	19
Feb. 21-26	34,650	41	5	6.9	89.6	4.5	.12	9.1	3.1	1.4		18	15	4.2	.2	2.0	62	35	21
Feb. 27-28	21,950	44	3	6.7	245	--	--	25	2.6	--		15	17	48	--	1.6	--	73	61
Mar. 1-10	18,190	43	3	7.0	109	4.1	.10	11	3.7	1.9		26	17	4.4	.1	1.7	70	43	21
Mar. 11-20	19,200	44	6	7.2	101	9.7	.07	10	3.6	2.8		26	17	3.4	.1	2.1	63	40	18
Mar. 21-31	30,564	47	6	7.2	91.3	5.8	.08	9.5	3.1	2.6		25	15	2.8	.1	2.1	57	36	16
Apr. 1-10	45,940	49	9	7.2	81.4	5.8	.10	8.8	2.8	1.0		20	14	2.1	.1	1.9	53	33	17
Apr. 11-20	26,780	51	1	7.1	94.4	4.4	.08	9.8	3.4	1.6		25	16	2.6	.1	1.1	63	38	18
Apr. 21-30	16,070	56	1	7.3	109	3.6	.06	11	3.9	3.4		32	18	3.2	.2	1.1	70	44	17
May 1-10	9,991	62	3	7.8	127	2.4	.06	13	4.8	3.2	1.6	40	20	4.0	.1	2.1	75	52	19
May 11-20	7,530	64	4	7.6	139	2.2	.03	14	5.0	4.2	1.5	43	22	4.4	.1	2.5	83	56	20
May 21-31	8,120	67	5	7.5	153	3.3	.06	16	5.7	3.3		45	23	5.0	.1	2.9	92	63	26
June 1-10	8,687	71	10	7.7	126	5.4	.02	13	5.2	2.9		39	19	3.5	.1	4.1	79	54	22
June 11-20	7,678	67	9	7.7	139	5.5	.05	14	5.2	3.7		41	21	4.0	.1	3.8	87	56	23
June 21-30	7,781	76	4	7.4	147	4.6	.03	15	5.1	5.2		46	21	4.5	.1	4.4	87	58	21

July 1-10	8,338	73	4	7.4	138	6.3	.03	14	5.4	2.3	40	20	3.8	.1	3.8	85	57	24
July 11-20	5,853	78	3	7.4	149	4.3	.01	14	5.2	6.3	45	23	5.0	.1	2.5	88	56	20
July 21-31	10,592	76	4	7.4	149	5.4	.07	15	5.3	5.0	45	23	5.0	.1	2.4	90	59	22
Aug. 1-10	7,279	73	18	7.2	165	5.6	.01	17	5.8	4.6	52	21	6.0	.1	3.8	101	66	24
Aug. 11-20	8,186	76	6	7.3	175	8.7	.01	18	6.3	7.4	58	27	6.0	.1	3.2	109	71	23
Aug. 21-31	5,314	74	5	7.4	179	6.8	.01	19	6.6	5.6	58	26	7.0	.1	2.4	108	75	27
Sept. 1-10	4,128	71	6	7.4	188	4.3	.01	20	7.0	5.6	61	28	6.5	.1	3.0	113	79	29
Sept. 11-20	4,895	71	7	7.3	175	3.0	.01	18	6.7	5.2	56	25	6.5	.1	3.0	106	72	27
Sept. 21-30	3,594	67	3	7.4	185	3.2	.01	19	7.3	6.4	61	27	7.0	.1	3.8	113	77	27
Average	14,730	56	7	--	137	4.7	0.06	14	4.7	4.4	38	21	4.7	0.1	2.8	84	54	23

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Table 6.--DELAWARE RIVER AT TRENTON, N. J. (MORRISVILLE, PA.)--Continued

Chemical analyses, in parts per million, water year October 1951 to September 1952

Date of collection	Mean discharge (cfs)	Temperature (° F.)	Color	pH	Specific conductance (micromhos at 25° C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																		Total	Noncarbonate
Oct. 1-10, 1951	3,960	65	5	7.4	198	3.7	0.04	20	7.4	5.4		59	28	8.0	0.1	3.8	116	80	32
Oct. 11-20	6,510	59	5	6.8	144	--	--	--	--	.6		32	22	4.0		3.2		56	30
Oct. 21-31	6,060	58	5	6.9	151	--	--	--	--	.5		36	22	4.5		3.0		60	30
Nov. 1, 2, 4-10	37,100	49	5	6.8	111	--	--	--	--	1.2		23	19	3.0		1.0		41	22
Nov. 11-20	21,400	48	5	6.8	107	--	--	--	--	.07		22	19	2.5		2.2		43	25
Nov. 21-30	13,600	42	5	7.2	120	--	--	--	--	.9		28	20	3.0		2.5		48	25
Dec. 1-10	18,100	46	5	7.1	117	--	--	--	--	1.5		26	19	3.0		2.5		44	23
Dec. 11-20	17,700	40	5	7.0	112	--	--	--	--	1.5		25	20	3.0		2.2		44	24
Dec. 21-23, 25, 28-31	23,300	39	5	7.2	117	--	--	--	--	1.7		25	20	3.0		2.8		44	24
Jan. 1-10, 1952	21,300	40	5	7.2	127	--	--	--	--	1.3		25	22	5.0		3.0		50	30
Jan. 11-20	16,000	41	5	7.4	130	--	--	--	--	.5		30	21	3.0		3.0		52	27
Jan. 21-31	31,300	39	5	7.0	106	--	--	--	--	3.9		25	18	4.5		3.5		40	20
Feb. 1-10	28,860	41	5	6.8	97.5	--	--	--	--	1.7		21	17	3.0		3.1		38	21
Feb. 11-20	14,300	41	5	7.0	119	--	--	--	--	2.9		30	19	5.0		3.4		48	23
Feb. 21-29	10,000	42	5	7.1	138	--	--	--	--	3.2		36	21	6.0		3.9		56	26
Mar. 1-10	8,960	42	6	7.3	142	--	--	--	--	2.9		38	21	6.0		3.5		58	27
Mar. 11-20	32,600	42	8	7.3	101	--	--	--	--	2.5		23	16	4.5		3.2		39	20
Mar. 21-31	28,800	47	9	7.2	87.7	--	--	--	--	1.8		20	14	3.5		2.5		38	18
Apr. 1-10	41,500	50	5	7.2	82.1	--	--	--	--	.5		17	15	2.5		2.5		34	20
Apr. 11-15, 17-20	32,600	52	5	7.4	94.4	--	--	--	--	1.1		23	16	2.0		2.5		38	19
Apr. 21-30	27,700	57	8	7.2	107	--	--	--	--	1.2		26	18	3.0		3.0		44	23
May 1-10	18,900	58	5	7.2	117	--	--	--	--	2.7		32	17	5.0		2.3		47	21
May 11-20	19,000	60	3	7.0	109	--	--	--	--	1.9		29	16	3.0		1.9		42	18
May 21-31	27,100	61	5	6.8	100	1.9	.00	10	3.5	2.0		26	16	3.0		1.6		39	18

June 1-10	23,400	67	4	7.3	101	--	--	--	--	2.6	28	14	4.0		1.9	39	16
June 11-20	9,650	73	5	7.2	141	--	--	--	--	2.8	42	19	5.0		1.1	56	22
June 21-30	6,100	73	3	7.6	165	--	--	--	--	1.4	48	23	5.5		2.6	70	31
July 1-10	6,390	76	5	7.6	191	--	--	--	--	1.7	60	25	6.0		2.7	82	33
July 11-20	23,500	76	5	7.3	104	--	--	--	--	3.3	24	18	3.5		3.4	39	19
July 21-31	6,680	79	5	7.1	147	--	--	--	--	4.3	40	24	4.0		3.7	57	24
Aug. 1-10	5,090	76	6	7.0	178	--	--	--	--	3.1	45	27	6.5		4.5	71	34
Aug. 11-20	8,050	75	8	7.4	156	--	--	--	--	4.7	43	24	5.0		3.6	60	25
Aug. 21-31	5,820	73	5	7.7	169	--	--	--	--	3.1	47	25	6.5		3.9	70	32
Sept. 1-10	17,100	69	15	7.5	135	--	--	--	--	1.8	34	21	3.5		4.0	54	26
Sept. 11-20	7,250	71	5	7.6	163	--	--	--	--	2.6	44	24	5.5		3.6	66	30
Sept. 21-30	5,710	51	5	7.4	173	--	--	--	--	3.6	49	25	6.0		3.9	70	30
Average	17,620	56	6	--	129	--	--	--	--	2.2	33	20	4.3		3.0	52	25

Table 7.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Bristol, Pa.-Burlington, N. J. Bridge Date August 1, 1949 Sampling study No. 1
Weather Cloudy Water discharge at Trenton (cfs) 3,350

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:30 p.m.	12:10 p.m.	12:00 n.	11:50 a.m.	11:45 a.m.	
Sounding (ft)		4	16	27	35	8	
Temperature (°F)	Top	86	86	86	85	84	T. 84
	Bottom	86	85	85	85	84	B. 85
Color	Bottom	10	8	10	15	10	B. 11
pH	Top	6.1	6.3	6.2	6.3	6.2	T. 6.2
	Bottom	6.4	6.3	6.5	6.9	6.5	B. 6.5
Specific conductance (micromhos at 25°C)	Top	206	194	193	193	192	T. 196
	Bottom	204	193	192	190	190	B. 194
Dissolved oxygen	Top	5.7	6.0	6.7	6.9	5.7	T. 6.2
B. O. D. (5-day, 20°C)	Top	—	—	—	—	—	T. —
Silica (SiO_2)	Bottom	3.4	2.3	2.4	4.6	2.9	B. 3.1
Iron (Fe)	Bottom	.07	.06	.06	.05	.07	B. .06
Calcium (Ca)	Bottom	18	18	18	19	19	B. 18
Magnesium (Mg)	Bottom	6.6	6.6	6.6	6.5	6.4	B. 6.5
Sodium (Na)	Bottom	9.0	8.1	9.1	7.0	9.7	B. 8.6
Bicarbonate (HCO_3)	Bottom	44	52	52	51	53	B. 50
Sulfate (SO_4)	Bottom	36	32	31	31	29	B. 32
Chloride (Cl)	Top	10	9.0	8.0	9.0	8.0	T. 8.8
	Bottom	8.5	7.1	6.9	7.0	6.9	B. 7.3
Fluoride (F)	Bottom	.1	.1	.1	.2	.1	B. .1
Nitrate (NO_3)	Bottom	6.1	4.7	4.8	4.1	4.4	B. 4.8
Dissolved solids	Bottom	125	118	120	119	119	B. 120
Hardness as $CaCO_3$	Bottom	72	72	72	74	74	B. 73
Suspended sediment	Top	Composite					T. —

Location Bristol, Pa.-Burlington, N. J. Bridge Date September 6, 1949 Sampling study No. 2
Weather Cloudy Water discharge at Trenton (cfs) 5,310

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		—	—	11:00 a.m.	—	—	
Sounding (ft)		15	28	46	40	7	
Temperature (°F)	Top	77	77	78	77	77	T. 77
	Bottom	77	77	77	76	77	B. 77
Color	Bottom	7	8	10	8	5	B. 8
pH	Top	6.7	6.7	6.8	6.8	6.8	T. 6.8
	Bottom	6.9	6.9	7.3	6.8	7.2	B. 7.0
Specific conductance (micromhos at 25°C)	Top	231	229	224	224	224	T. 226
	Bottom	232	229	221	223	226	B. 226
Dissolved oxygen	Top	6.3	6.6	6.8	6.6	6.6	T. 6.6
B. O. D. (5-day, 20°C)	Top	—	—	—	—	—	T. —
Silica (SiO_2)	Bottom	2.1	2.4	2.7	2.3	1.8	B. 2.3
Iron (Fe)	Bottom	.10	.10	.06	.06	.06	B. .08
Calcium (Ca)	Bottom	21	21	21	22	21	B. 21
Magnesium (Mg)	Bottom	8.1	8.1	8.0	8.0	8.1	B. 8.1
Sodium (Na)	Bottom	7.2	8.7	9.0	10	10	B. 9.0
Bicarbonate (HCO_3)	Bottom	56	55	56	58	60	B. 57
Sulfate (SO_4)	Bottom	40	38	38	38	37	B. 38
Chloride (Cl)	Top	11	12	10	11	11	T. 11
	Bottom	8.4	10	9.8	9.9	10	B. 9.6
Fluoride (F)	Bottom	.1	.1	.1	.1	.1	B. .1
Nitrate (NO_3)	Bottom	6.0	5.6	5.3	5.6	5.8	B. 5.7
Dissolved solide	Bottom	142	135	143	141	142	B. 141
Hardness as $CaCO_3$	Bottom	86	86	85	88	86	B. 86
Suspended sediment	Top	Composite					T. 27

Table 7.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.--Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Bristol, Pa.-Burlington, N. J. Bridge Date October 4, 1949 Sampling study No. 3
Weather Cloudy Water discharge at Trenton (cfs) 3,520

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		—	—	11:00 a.m.	—	—	
Sounding (ft)		15	23	46	46	18	
Temperature (°F)	Top	68	68	68	68	68	T. 68
	Bottom	65	65	66	66	68	B. 66
Color	Bottom	9	8	14	10	12	B. 11
pH	Top	7.1	6.9	6.9	6.9	6.8	T. 6.9
	Bottom	6.8	6.9	6.9	7.2	7.0	B. 7.0
Specific conductance (micromhos at 25°C)	Top	229	226	221	221	217	T. 223
	Bottom	228	227	216	216	213	B. 220
Dissolved oxygen	Top	6.8	7.5	7.3	7.0	7.0	T. 7.1
B. O. D. (5-day, 20°C)	Top	3.6	3.3	2.5	4.0	4.6	T. 3.6
Silica (SiO_2)	Bottom	2.2	2.6	2.4	2.6	3.0	B. 2.6
Iron (Fe)	Bottom	.06	.05	.10	.10	.08	B. .08
Calcium (Ca)	Bottom	20	19	20	20	20	B. 20
Magnesium (Mg)	Bottom	7.6	7.5	7.5	7.6	7.5	B. 7.5
Sodium (Na)	Bottom	10	11	9.6	10	.0	B. 10
Bicarbonate (HCO_3)	Bottom	52	52	53	56	.5	B. 54
Sulfate (SO_4)	Bottom	38	37	36	36	36	B. 37
Chloride (Cl)	Top	14	13	12	12	12	T. 13
	Bottom	11	11	11	10	11	B. 11
Fluoride (F)	Bottom	.1	.2	.2	.2	.2	B. .2
Nitrate (NO_3)	Bottom	5.8	5.6	5.5	5.5	5.6	B. 5.6
Dissolved solids	Bottom	131	129	126	126	126	B. 128
Hardness as $CaCO_3$	Bottom	81	78	81	81	81	B. 80
Suspended sediment	Top	Composite					T. 33

Location Bristol, Pa.-Burlington, N. J. Bridge Date November 1, 1949 Sampling study No. 4
Weather Cloudy Water discharge at Trenton (cfs) 3,340

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		—	—	11:45 a.m.	—	—	
Sounding (ft)		—	23	40	—	12	
Temperature (°F)	Top	57	57	54	57	57	T. 56
	Bottom	57	57	54	55	55	B. 56
Color	Bottom	6	7	8	5	8	B. 7
pH	Top	6.8	6.8	6.9	6.9	6.9	T. 6.9
	Bottom	7.8	7.6	7.8	7.7	7.6	B. 7.7
Specific conductance (micromhos at 25°C)	Top	216	215	213	212	210	T. 213
	Bottom	217	218	217	214	205	B. 214
Dissolved oxygen	Top	7.3	7.3	7.3	7.6	7.3	T. 7.4
B. O. D. (5-day, 20°C)	Top	4.3	4.2	4.2	4.0	5.0	T. 4.3
Silica (SiO_2)	Bottom	1.4	1.6	1.6	1.8	1.5	B. 1.6
Iron (Fe)	Bottom	.03	.03	.04	.03	.03	B. .03
Calcium (Ca)	Bottom	19	18	19	19	19	B. 19
Magnesium (Mg)	Bottom	7.3	7.6	7.3	7.1	7.3	B. 7.3
Sodium (Na)	Bottom	9.8	10	9.4	9.8	9.3	B. 9.7
Bicarbonate (HCO_3)	Bottom	53	52	54	54	55	B. 54
Sulfate (SO_4)	Bottom	34	35	34	34	33	B. 34
Chloride (Cl)	Top	12	11	12	12	12	T. 12
	Bottom	11	11	11	10	10	B. 10
Fluoride (F)	Bottom	.2	.2	.2	.2	.2	B. .2
Nitrate (NO_3)	Bottom	4.1	4.4	4.2	4.6	4.4	B. 4.3
Dissolved solids	Bottom	124	124	124	123	123	B. 124
Hardness as $CaCO_3$	Bottom	77	76	77	77	77	B. 77
Suspended sediment	Top	Composite					T. 12

Table 7. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Bristol, Pa.-Burlington, N. J. Bridge Date December 1, 1949 Sampling study No. 5
Weather Clear Water discharge at Trenton (cfs) 4,970

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		—	—	10:45 a.m.	—	—		
Sounding (ft)		15	21	21	29	10		
Temperature (°F)	Top	40	43	42	42	42	T.	42
	Bottom	40	41	42	42	42	B.	41
Color	Bottom	8	7	6	6	10	B.	7
pH	Top	6.7	6.8	6.7	6.8	7.1	T.	6.8
	Bottom	6.8	6.6	6.6	6.8	6.4	B.	6.6
Specific conductance (micromhos at 25°C)	Top	145	145	140	139	141	T.	142
	Bottom	145	139	138	139	147	B.	142
Dissolved oxygen	Top	11.0	10.7	11.0	10.5	10.3	T.	10.7
B. O. D. (5-day, 20°C)	Top	3.4	3.0	3.1	2.6	3.0	T.	3.0
Silica (SiO_2)	Bottom	3.2	3.2	2.6	3.5	4.7	B.	3.4
Iron (Fe)	Bottom	.08	.15	.14	.14	.05	B.	.11
Calcium (Ca)	Bottom	13	13	13	13	14	B.	13
Magnesium (Mg)	Bottom	5.3	4.7	4.5	5.0	5.1	B.	4.9
Sodium (Na)	Bottom	5.7	5.2	4.4	3.9	4.9	B.	4.8
Bicarbonate (HCO_3)	Bottom	31	31	30	30	36	B.	32
Sulfate (SO_4)	Bottom	26	24	23	24	21	B.	24
Chloride (Cl)	Top	7.0	6.0	6.0	6.0	6.0	T.	6.2
	Bottom	8.0	7.0	6.5	6.5	6.5	B.	6.9
Fluoride (F)	Bottom	.0	.0	.1	.0	.1	B.	.0
Nitrate (NO_3)	Bottom	3.7	3.5	3.2	3.4	1.2	B.	3.0
Dissolved solids	Bottom	83	80	80	82	87	B.	82
Hardness as $CaCO_3$	Bottom	54	52	51	53	56	B.	53
Suspended sediment	Top	Composite					T.	17

Location Bristol, Pa.-Burlington, N. J. Bridge Date January 3, 1950 Sampling study No. 6
Weather Cloudy Water discharge at Trenton (cfs) 11,100

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		11:12 a.m.	11:10 a.m.	11:06 a.m.	11:03 a.m.	11:00 a.m.		
Sounding (ft)		13	8	35	35	11		
Temperature (°F)	Top	—	—	—	—	—	T.	—
	Bottom	—	—	—	—	—	B.	—
Color	Bottom	10	11	12	10	9	B.	10
pH	Top	6.6	6.5	6.5	6.5	6.5	T.	6.5
	Bottom	6.8	6.8	6.9	7.1	7.0	B.	6.9
Specific conductance (micromhos at 25°C)	Top	96.4	97.6	98.5	97.6	99.4	T.	97.9
	Bottom	94.9	102	94.9	95.2	97.0	B.	96.8
Dissolved oxygen	Top	12.2	12.3	12.5	12.2	11.9	T.	12.2
B. O. D. (5-day, 20°C)	Top	3.8	3.6	3.6	3.8	2.4	T.	3.4
Silica (SiO_2)	Bottom	5.0	5.2	4.8	4.8	5.1	B.	5.0
Iron (Fe)	Bottom	.06	.12	.05	.05	.11	B.	.08
Calcium (Ca)	Bottom	9.6	10	9.7	10	9.9	B.	9.8
Magnesium (Mg)	Bottom	3.6	3.9	3.7	3.6	4.1	B.	3.8
Sodium (Na)	Bottom	2.4	1.6	1.3	1.2	1.1	B.	1.5
Bicarbonate (HCO_3)	Bottom	18	19	18	19	18	B.	18
Sulfate (SO_4)	Bottom	20	21	19	19	20	B.	20
Chloride (Cl)	Top	5.0	5.0	5.0	5.0	6.0	T.	5.2
	Bottom	3.5	3.2	3.5	3.0	3.5	B.	3.3
Fluoride (F)	Bottom	.0	.1	.0	.0	.0	B.	.0
Nitrate (NO_3)	Bottom	3.3	5.2	3.4	3.4	3.9	B.	3.8
Dissolved solids	Bottom	61	68	63	63	64	B.	64
Hardness as $CaCO_3$	Bottom	39	41	39	40	42	B.	40
Suspended sediment	Top	Composite					T.	16

Table 7. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Bristol, Pa.-Burlington, N. J. Bridge Date February 2, 1950 Sampling study No. 7
Weather Cloudy Water discharge at Trenton (cfs) 13,200

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:51 a.m.	11:47 a.m.	11:44 a.m.	11:36 a.m.	11:32 a.m.	
Sounding (ft)		8	16	28	48	38	
Temperature (°F)	Top	40	40	40	40	40	T. 40
	Bottom	39	39	39	38	40	B. 39
Color	Bottom	18	17	18	19	28	B. 20
pH	Top	6.9	6.9	6.9	6.9	6.9	T. 6.9
	Bottom	6.8	6.9	7.0	7.1	6.8	B. 6.9
Specific conductance (micromhos at 25°C)	Top	123	117	113	112	113	T. 116
	Bottom	125	122	115	114	115	B. 118
Dissolved oxygen	Top	11.3	11.5	11.7	11.5	11.0	T. 11.4
B. O. D. (5-day, 20°C)	Top	3.8	3.0	2.8	2.8	2.2	T. 2.9
Silica (SiO_2)	Bottom	5.2	5.1	5.6	5.9	5.1	B. 5.4
Iron (Fe)	Bottom	.14	.14	.13	.13	.23	B. .15
Calcium (Ca)	Bottom	11	11	11	11	11	B. 11
Magnesium (Mg)	Bottom	4.0	3.9	3.8	3.9	3.8	B. 3.9
Sodium (Na)	Bottom	7.9	5.1	5.7	6.1	5.6	B. 6.1
Bicarbonate (HCO_3)	Bottom	27	23	26	29	25	B. 26
Sulfate (SO_4)	Bottom	26	24	23	23	24	B. 24
Chloride (Cl)	Top	6.0	4.0	4.0	4.0	4.0	T. 4.4
	Bottom	6.0	5.2	4.5	4.2	4.5	B. 4.9
Fluoride (F)	Bottom	.2	.1	.1	.1	.1	B. .1
Nitrate (NO_3)	Bottom	3.7	4.0	4.5	3.6	3.8	B. 3.9
Dissolved solids	Bottom	84	81	81	79	79	B. 81
Hardness as $CaCO_3$	Bottom	44	44	43	44	43	B. 44
Suspended sediment	Top	Composite					T. 13

Location Bristol, Pa.-Burlington, N. J. Bridge Date March 6, 1950 Sampling study No. 8
Weather Clear Water discharge at Trenton (cfs) 7,080

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:28 p.m.	12:21 p.m.	12:15 p.m.	12:10 p.m.	12:04 p.m.	
Sounding (ft)		17	41	41	39	15	
Temperature (°F)	Top	35	35	35	35	35	T. 35
	Bottom	34	34	34	34	35	B. 34
Color	Bottom	10	12	12	12	12	B. 12
pH	Top	7.1	7.1	7.1	7.1	7.0	T. 7.1
	Bottom	7.1	7.2	7.2	6.9	6.8	B. 7.0
Specific conductance (micromhos at 25°C)	Top	152	138	135	136	137	T. 140
	Bottom	139	132	133	136	138	B. 136
Dissolved oxygen	Top	13.2	13.0	13.0	13.6	13.1	T. 13.2
B. O. D. (5-day, 20°C)	Top	4.0	4.8	3.8	4.4	4.4	T. 4.3
Silica (SiO_2)	Bottom	4.6	4.4	4.6	4.4	5.8	B. 4.8
Iron (Fe)	Bottom	.01	.01	.01	.01	.01	B. .01
Calcium (Ca)	Bottom	14	14	14	14	14	B. 14
Magnesium (Mg)	Bottom	4.4	4.4	4.6	4.8	5.1	B. 4.7
Sodium (Na)	Bottom	6.1	4.1	4.4	5.0	5.6	B. 5.0
Bicarbonate (HCO_3)	Bottom	32	30	32	30	34	B. 32
Sulfate (SO_4)	Bottom	26	24	24	26	28	B. 26
Chloride (Cl)	Top	8.0	6.0	6.0	6.0	8.0	T. 6.8
	Bottom	6.0	6.0	6.0	6.0	6.0	B. 6.0
Fluoride (F)	Bottom	.1	.1	.1	.1	.2	B. .1
Nitrate (NO_3)	Bottom	4.9	4.1	4.4	6.4	3.5	B. 4.7
Dissolved solids	Bottom	86	80	80	86	87	B. 84
Hardness as $CaCO_3$	Bottom	53	53	54	55	56	B. 54
Suspended sediment	Top	Composite					T. 8

Table 7. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Bristol, Pa.-Burlington, N. J. Bridge Date April 4, 1950 Sampling study No. 9
Weather Clear Water discharge at Trenton (cfs) 36,600

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:50 a.m.	11:45 a.m.	11:40 a.m.	11:35 a.m.	11:25 a.m.	
Sounding (ft)		10	20	30	30	15	
Temperature (°F)	Top	49	48	47	47	48	T. 48
	Bottom	47	46	47	47	47	B. 47
Color	Bottom	8	8	6	7	6	B. 7
pH	Top	6.8	6.9	6.9	6.9	6.8	T. 6.9
	Bottom	6.8	7.0	7.0	7.0	7.0	B. 7.0
Specific conductance (micromhos at 25°C)	Top	81.4	74.7	73.3	73.5	77.9	T. 76.2
	Bottom	83.9	74.9	76.0	76.3	78.9	B. 78.0
Dissolved oxygen	Top	10.9	11.3	11.2	11.1	10.7	T. 11.0
B. O. D. (5-day, 20°C)	Top	4.8	2.8	2.6	2.6	2.1	T. 3.0
Silica (SiO_2)	Bottom	4.0	4.1	4.1	4.1	4.3	B. 4.1
Iron (Fe)	Bottom	.06	.05	.02	.09	.05	B. .05
Calcium (Ca)	Bottom	8.2	8.4	8.0	8.0	7.9	B. 8.1
Magnesium (Mg)	Bottom	3.0	2.7	2.9	2.8	3.0	B. 2.9
Sodium (Na)	Bottom	3.5	3.7	2.9	3.0	4.2	B. 3.5
Bicarbonate (HCO_3)	Bottom	16	19	19	18	19	B. 18
Sulfate (SO_4)	Bottom	19	16	16	15	17	B. 17
Chloride (Cl)	Top	3.0	2.8	2.8	2.5	2.8	T. 2.8
	Bottom	3.5	3.5	3.2	3.8	3.8	B. 3.6
Fluoride (F)	Bottom	.1	.1	.1	.1	.1	B. .1
Nitrate (NO_3)	Bottom	3.0	2.4	1.4	2.6	2.8	B. 2.4
Dissolved solids	Bottom	58	57	57	55	56	B. 57
Hardness as $CaCO_3$	Bottom	33	32	32	31	32	B. 32
Suspended sediment	Top	Composite					T. 18

Location Bristol, Pa.-Burlington, N. J. Bridge Date May 1, 1950 Sampling study No. 10
Weather Cloudy Water discharge at Trenton (cfs) 12,300

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:35 a.m.	11:30 a.m.	11:26 a.m.	11:22 a.m.	11:15 a.m.	
Sounding (ft)		10	19	27	46	14	
Temperature (°F)	Top	53	52	54	54	54	T. 53
	Bottom	52	52	52	52	54	B. 52
Color	Bottom	5	6	5	5	5	B. 5
pH	Top	6.9	6.9	7.1	7.1	7.1	T. 7.0
	Bottom	6.8	7.0	7.1	7.0	6.6	B. 6.9
Specific conductance (micromhos at 25°C)	Top	111	107	102	103	103	T. 105
	Bottom	115	106	101	104	105	B. 106
Dissolved oxygen	Top	9.6	9.8	9.7	9.7	9.8	T. 9.7
B. O. D. (5-day, 20°C)	Top	2.3	2.1	1.7	1.6	1.7	T. 1.9
Silica (SiO_2)	Bottom	3.6	3.6	3.4	3.7	3.6	B. 3.6
Iron (Fe)	Bottom	.08	.06	.06	.09	.06	B. .07
Calcium (Ca)	Bottom	10	10	10	11	10	B. 10
Magnesium (Mg)	Bottom	3.8	3.6	3.5	3.6	3.8	B. 3.7
Sodium (Na)	Bottom	7.1	6.8	6.0	4.0	3.7	B. 5.5
Bicarbonate (HCO_3)	Bottom	27	28	32	29	26	B. 28
Sulfate (SO_4)	Bottom	22	20	18	19	19	B. 20
Chloride (Cl)	Top	6.0	5.0	5.0	4.0	5.0	T. 5.0
	Bottom	6.0	6.2	4.0	4.0	4.0	B. 4.8
Fluoride (F)	Bottom	.1	.1	.0	.1	.1	B. .1
Nitrate (NO_3)	Bottom	2.9	2.1	1.9	1.9	2.1	B. 2.2
Dissolved solids	Bottom	75	72	67	71	67	B. 70
Hardness as $CaCO_3$	Bottom	41	40	39	42	41	B. 41
Suspended sediment	Top	Composite					T. 21

Table 7. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Bristol, Pa.-Burlington, N. J. Bridge Date June 6, 1950 Sampling study No. 11
Weather Clear Water discharge at Trenton (cfs) 18,900

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:04 p.m.	12:00 n.	11:55 a.m.	11:50 a.m.	11:46 a.m.	
Sounding (ft)		16	21	41	38	15	
Temperature (°F)	Top	69	68	68	69	69	T. 69
	Bottom	68	68	68	68	68	B. 68
Color	Bottom	20	20	20	20	20	B. 20
pH	Top	6.8	6.7	6.8	6.9	6.9	T. 6.8
	Bottom	7.0	6.8	6.9	7.2	7.2	B. 7.0
Specific conductance (micromhos at 25°C)	Top	112	120	106	107	107	T. 110
	Bottom	114	106	105	106	106	B. 107
Dissolved oxygen	Top	6.3	6.5	6.6	6.4	6.1	T. 6.4
B. O. D. (5-day, 20°C)	Top	2.6	2.2	2.3	1.3	1.4	T. 2.0
Silica (SiO_2)	Bottom	5.1	5.0	4.8	5.0	5.1	B. 5.0
Iron (Fe)	Bottom	.03	.04	.03	.02	.06	B. .04
Calcium (Ca)	Bottom	12	11	12	12	11	B. 12
Magnesium (Mg)	Bottom	3.3	2.6	3.1	3.1	3.2	B. 3.1
Sodium (Na)	Bottom	3.5	3.4	2.1	2.8	2.9	B. 2.9
Bicarbonate (HCO_3)	Bottom	29	28	28	27	27	B. 28
Sulfate (SO_4)	Bottom	21	19	19	18	19	B. 19
Chloride (Cl)	Top	5.0	6.0	5.0	4.0	4.0	T. 4.8
	Bottom	4.4	3.8	4.1	3.5	3.5	B. 3.9
Fluoride (F)	Bottom	.1	.1	.1	.1	.1	B. .1
Nitrate (NO_3)	Bottom	3.1	3.0	3.2	2.7	3.0	B. 3.0
Dissolved solids	Bottom	77	76	74	72	74	B. 75
Hardness as $CaCO_3$	Bottom	51	38	47	49	41	B. 45
Suspended sediment	Top	Composite					T. 12

Location Bristol, Pa.-Burlington, N. J. Bridge Date July 6, 1950 Sampling study No. 12
Weather Cloudy Water discharge at Trenton (cfs) 6,130

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:50 a.m.	10:45 a.m.	10:40 a.m.	10:35 a.m.	10:30 a.m.	
Sounding (ft)		15	27	44	45	9	
Temperature (°F)	Top	78	78	78	78	78	T. 78
	Bottom	77	77	78	78	78	B. 78
Color	Bottom	4	4	4	4	4	B. 4
pH	Top	6.9	7.0	6.8	6.8	6.9	T. 6.9
	Bottom	7.1	7.2	6.9	7.1	7.1	B. 7.1
Specific conductance (micromhos at 25°C)	Top	140	135	133	133	132	T. 135
	Bottom	138	135	134	133	132	B. 134
Dissolved oxygen	Top	4.0	4.0	4.2	4.0	3.7	T. 4.0
B. O. D. (5-day, 20°C)	Top	2.7	1.9	2.1	1.5	2.0	T. 2.0
Silica (SiO_2)	Bottom	4.4	3.7	3.4	3.9	3.9	B. 3.9
Iron (Fe)	Bottom	.02	.02	.05	.04	.04	B. .03
Calcium (Ca)	Bottom	13	13	13	13	13	B. 13
Magnesium (Mg)	Bottom	4.7	4.7	4.7	4.5	4.5	B. 4.6
Sodium (Na)	Bottom	5.3	5.6	3.6	4.2	6.3	B. 5.0
Bicarbonate (HCO_3)	Bottom	37	38	37	39	38	B. 38
Sulfate (SO_4)	Bottom	23	21	21	20	21	B. 21
Chloride (Cl)	Top	8.0	6.0	6.0	6.0	6.0	T. 6.4
	Bottom	5.9	6.2	5.0	4.5	5.5	B. 5.4
Fluoride (F)	Bottom	.2	.1	.1	.1	.1	B. .1
Nitrate (NO_3)	Bottom	3.3	3.2	4.0	3.7	4.2	B. 3.7
Dissolved solids	Bottom	83	80	81	82	83	B. 82
Hardness as $CaCO_3$	Bottom	67	67	63	64	68	B. 66
Suspended sediment	Top	Composite					T. 40

Table 7. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Bristol, Pa.-Burlington, N. J. Bridge Date August 2, 1950 Sampling study No. 13
Weather Cloudy Water discharge at Trenton (cfs) 5,090

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:40 a.m.	11:35 a.m.	11:30 a.m.	11:25 a.m.	11:20 a.m.	
Sounding (ft)		9	19	36	37	16	
Temperature (°F)	Top	79	79	79	78	79	T. 79
	Bottom	79	79	79	79	79	B. 79
Color	Bottom	10	8	12	8	12	B. 10
pH	Top	6.2	6.7	6.7	6.7	6.7	T. 6.6
	Bottom	6.5	6.9	6.6	6.7	6.6	B. 6.7
Specific conductance (micromhos at 25°C)	Top	163	140	137	138	137	T. 143
	Bottom	154	140	138	137	137	B. 141
Dissolved oxygen	Top	6.0	6.4	6.3	6.1	5.8	T. 6.1
B. O. D. (5-day, 20°C)	Top	—	1.3	1.0	1.0	1.3	T. 1.1
Silica (SiO_2)	Bottom	4.8	4.5	4.2	4.6	4.6	B. 4.5
Iron (Fe)	Bottom	.03	.04	.07	.04	.08	B. .05
Calcium (Ca)	Bottom	14	14	14	14	14	B. 14
Magnesium (Mg)	Bottom	4.3	4.2	4.2	4.2	4.3	B. 4.2
Sodium (Na)	Bottom	7.3	5.3	4.6	4.5	4.2	B. 5.2
Bicarbonate (HCO_3)	Bottom	35	39	38	38	38	B. 38
Sulfate (SO_4)	Bottom	28	23	22	22	22	B. 23
Chloride (Cl)	Top	8.0	8.0	7.0	7.0	7.0	T. 7.4
	Bottom	7.2	5.5	5.0	5.0	5.0	B. 5.5
Fluoride (F)	Bottom	.1	.1	.1	.1	.1	B. .1
Nitrate (NO_3)	Bottom	2.6	2.4	3.1	3.0	3.1	B. 2.8
Dissolved solids	Bottom	105	95	91	95	96	B. 96
Hardness as $CaCO_3$	Bottom	53	52	52	52	53	B. 52
Suspended sediment	Top	Composite					T. 33

Location Bristol, Pa.-Burlington, N. J. Bridge Date September 6, 1950 Sampling study No. 14
Weather Clear Water discharge at Trenton (cfs) 4,860

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:45 p.m.	12:49 p.m.	12:52 p.m.	12:57 p.m.	1:01 p.m.	
Sounding (ft)		24	32	45	22	9	
Temperature (°F)	Top	76	76	76	76	77	T. 76
	Bottom	76	75	76	76	76	B. 76
Color	Bottom	8	8	7	9	9	B. 8
pH	Top	7.1	6.9	6.9	6.9	6.9	T. 6.9
	Bottom	7.1	6.9	7.1	6.9	7.0	B. 7.0
Specific conductance (micromhos at 25°C)	Top	175	178	176	173	173	T. 175
	Bottom	178	174	174	172	172	B. 174
Dissolved oxygen	Top	5.5	5.5	5.5	5.5	6.0	T. 5.6
B. O. D. (5-day, 20°C)	Top	6.3	3.3	3.0	2.1	5.1	T. 4.0
Silica (SiO_2)	Bottom	4.3	4.2	4.2	4.3	4.3	B. 4.3
Iron (Fe)	Bottom	.11	.12	.07	.07	.14	B. .10
Calcium (Ca)	Bottom	16	17	16	16	17	B. 16
Magnesium (Mg)	Bottom	6.5	6.1	6.1	6.2	6.3	B. 6.2
Sodium (Na)	Bottom	7.0	4.9	6.6	6.4	5.2	B. 6.0
Bicarbonate (HCO_3)	Bottom	46	45	46	46	47	B. 46
Sulfate (SO_4)	Bottom	28	25	27	26	26	B. 26
Chloride (Cl)	Top	9.0	9.0	9.0	8.0	8.0	T. 8.6
	Bottom	8.2	8.2	8.0	7.8	7.5	B. 7.9
Fluoride (F)	Bottom	.1	.1	.1	.1	.1	B. .1
Nitrate (NO_3)	Bottom	4.4	4.9	4.3	4.7	4.7	B. 4.6
Dissolved solids	Bottom	116	113	113	108	108	B. 112
Hardness as $CaCO_3$	Bottom	67	68	65	65	68	B. 67
Suspended sediment	Top	Composite					T. 16

Table 7.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.--Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Bristol, Pa.-Burlington, N. J. Bridge Date October 3, 1950 Sampling study No. 15
Weather Misty Water discharge at Trenton (cfs) 2,840

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:50 p.m.	12:45 p.m.	12:40 p.m.	12:35 p.m.	12:30 p.m.	
Sounding (ft)		10	24	40	38	9	
Temperature (°F)	Top	65	65	65	65	65	T. 65
	Bottom	65	64	64	64	65	B. 64
Color	Bottom	12	12	9	8	8	B. 10
pH	Top	6.4	6.5	6.8	6.8	6.8	T. 6.7
	Bottom	7.0	6.7	6.9	6.8	7.0	B. 6.9
Specific conductance (micromhos at 25°C)	Top	222	207	183	183	184	T. 196
	Bottom	214	185	182	182	182	B. 189
Dissolved oxygen	Top	6.8	6.8	7.8	7.5	7.1	T. 7.2
B. O. D. (5-day, 20°C)	Top	5.3	3.1	1.1	.8	.6	T. 2.2
Silica (SiO_2)	Bottom	3.5	3.5	3.6	3.7	3.8	B. 3.6
Iron (Fe)	Bottom	.09	.06	.07	.05	.05	B. .06
Calcium (Ca)	Bottom	18	18	18	17	17	B. 18
Magnesium (Mg)	Bottom	6.3	6.2	6.0	6.0	6.0	B. 6.1
Sodium (Na)	Bottom	12	7.3	9.3	7.9	8.1	B. 8.9
Bicarbonate (HCO_3)	Bottom	40	46	48	45	46	B. 45
Sulfate (SO_4)	Bottom	41	32	31	31	31	B. 33
Chloride (Cl)	Top	14	12	8.0	8.0	8.0	T. 10
	Bottom	13	8.5	8.5	8.5	9.0	B. 9.5
Fluoride (F)	Bottom	.1	.1	.1	.1	.1	B. .1
Nitrate (NO_3)	Bottom	5.7	4.1	4.0	4.0	3.8	B. 4.3
Dissolved solids	Bottom	129	110	110	110	110	B. 114
Hardness as $CaCO_3$	Bottom	71	70	70	67	67	B. 69
Suspended sediment	Top	Composite					T. 8

Location Bristol, Pa.-Burlington, N. J. Bridge Date November 2, 1950 Sampling study No. 16
Weather Clear Water discharge at Trenton (cfs) 2,550

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:20 p.m.	12:16 p.m.	12:12 p.m.	12:08 p.m.	12:03 p.m.	
Sounding (ft)		3	16	37	44	9	
Temperature (°F)	Top	60	60	60	60	60	T. 60
	Bottom	61	60	60	60	60	B. 60
Color	Bottom	5	7	10	6	8	B. 7
pH	Top	6.7	6.8	6.9	6.9	6.8	T. 6.8
	Bottom	6.8	7.1	7.3	7.3	7.3	B. 7.2
Specific conductance (micromhos at 25°C)	Top	236	219	203	203	203	T. 213
	Bottom	235	212	202	202	201	B. 210
Dissolved oxygen	Top	9.1	7.9	8.9	9.6	9.0	T. 8.9
B. O. D. (5-day, 20°C)	Top	8.4	4.5	3.4	3.5	3.2	T. 4.6
Silica (SiO_2)	Bottom	1.9	1.8	2.1	1.8	2.2	B. 2.0
Iron (Fe)	Bottom	.01	.05	.04	.04	.05	B. .04
Calcium (Ca)	Bottom	18	18	18	18	18	B. 18
Magnesium (Mg)	Bottom	7.1	7.1	7.1	7.1	7.1	B. 7.1
Sodium (Na)	Bottom	15	11	7.9	8.1	7.9	B. 10
Bicarbonate (HCO_3)	Bottom	48	50	49	49	49	B. 49
Sulfate (SO_4)	Bottom	42	36	32	33	33	B. 35
Chloride (Cl)	Top	12	12	10	10	10	T. 11
	Bottom	14	12	10	10	10	B. 11
Fluoride (F)	Bottom	.1	.1	.1	.1	.1	B. .1
Nitrate (NO_3)	Bottom	5.6	4.9	4.9	4.6	4.0	B. 4.8
Dissolved solide	Bottom	138	126	121	119	120	B. 125
Hardness as $CaCO_3$	Bottom	74	74	74	74	74	B. 74
Suspended sediment	Top	Composite					T. 17

Table 7. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Bristol, Pa.-Burlington, N. J. Bridge Date December 4, 1950 Sampling study No. 17
Weather Rain Water discharge at Trenton (cfs) 15,000

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:15 p.m.	12:10 p.m.	12:05 p.m.	12:00 n.	11:55 a.m.	
Sounding (ft)		6	15	25	42	10	
Temperature (°F)	Top	43	42	42	42	42	T. 42
	Bottom	43	43	43	43	43	B. 43
Color	Bottom	14	13	12	12	12	B. 13
pH	Top	6.5	6.6	6.7	6.7	6.7	T. 6.6
	Bottom	7.3	7.5	7.4	7.5	7.5	B. 7.4
Specific conductance (micromhos at 25°C)	Top	145	106	103	107	102	T. 113
	Bottom	114	106	103	102	100	B. 105
Dissolved oxygen	Top	13.5	13.6	13.3	13.0	13.0	T. 13.3
B. O. D. (5-day, 20°C)	Top	5.8	5.7	3.2	2.8	2.1	T. 3.9
Silica (SiO_2)	Bottom	—	—	—	—	—	B. —
Iron (Fe)	Bottom	—	—	—	—	—	B. —
Calcium (Ca)	Bottom	—	—	—	—	—	B. —
Magnesium (Mg)	Bottom	—	—	—	—	—	B. —
Sodium (Na)	Bottom	—	—	—	—	—	B. —
Bicarbonate (HCO_3)	Bottom	17	19	19	20	18	B. 19
Sulfate (SO_4)	Bottom	23	22	21	21	21	B. 22
Chloride (Cl)	Top	14	4.0	4.0	4.0	4.0	T. 6.0
	Bottom	6.2	5.0	4.2	4.2	4.0	B. 4.7
Fluoride (F)	Bottom	—	—	—	—	—	B. —
Nitrate (NO_3)	Bottom	4.7	4.0	4.1	3.7	4.0	B. 4.1
Dissolved solids	Bottom	—	—	—	—	—	B. —
Hardness as $CaCO_3$	Bottom	38	36	39	38	37	B. 38
Suspended sediment	Top	Composite					T. 18

Location Bristol, Pa.-Burlington, N. J. Bridge Date January 3, 1951 Sampling study No. 18
Weather Clear Water discharge at Trenton (cfs) 8,210

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:30 a.m.	10:34 a.m.	10:32 a.m.	10:28 a.m.	10:25 a.m.	
Sounding (ft)		7	14	27	35	32	
Temperature (°F)	Top	34	34	34	34	35	T. 34
	Bottom	34	34	34	34	36	B. 34
Color	Bottom	10		8		10	B. 9
pH	Top	6.8	6.9	6.9	7.0	7.0	T. 6.9
	Bottom	7.1	6.9	7.2	7.0	7.2	B. 7.1
Specific conductance (micromhos at 25°C)	Top	154	151	150	148	149	T. 150
	Bottom	150	159	146	154	143	B. 150
Dissolved oxygen	Top	11.7	12.1	11.6	11.8	12.0	T. 11.8
B. O. D. (5-day, 20°C)	Top	1.5	2.3	1.1	1.4	.9	T. 1.4
Silica (SiO_2)	Bottom	6.6		6.1		6.2	B. 6.3
Iron (Fe)	Bottom	.09		.07		.10	B. .09
Calcium (Ca)	Bottom	14		14		14	B. 14
Magnesium (Mg)	Bottom	5.2		5.2		5.2	B. 5.2
Sodium (Na)	Bottom	6.1		5.1		5.2	B. 5.5
Bicarbonate (HCO_3)	Bottom	31		31		33	B. 32
Sulfate (SO_4)	Bottom	29		27		26	B. 27
Chloride (Cl)	Top	7.0	6.0	6.0	6.0	6.0	T. 6.2
	Bottom	7.2	6.0	6.8	6.0	6.8	B. 6.6
Fluoride (F)	Bottom	.2		.2		.2	B. .2
Nitrate (NO_3)	Bottom	4.7		5.0		4.5	B. 4.7
Dissolved solids	Bottom	97		93		91	B. 94
Hardness as $CaCO_3$	Bottom	56		56		56	B. 56
Suspended sediment	Top	Composite					T. 7

Table 7. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Bristol, Pa.-Burlington, N. J. Bridge Date March 2, 1951 Sampling study No. 19
Weather Clear Water discharge at Trenton (cfs) 19,600

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:25 a.m.	11:15 a.m.	11:10 a.m.	11:05 a.m.	11:00 a.m.	
Sounding (ft)		25	28	40	43	31	
Temperature (°F)	Top	43	42	42	43	43	T. 43
	Bottom	42	42	42	42	42	B. 42
Color	Bottom	9		10		9	B. 9
pH	Top	6.6	6.7	6.6	6.7	6.8	T. 6.7
	Bottom	7.2	6.6	7.3	6.8	7.3	B. 7.0
Specific conductance (micromhos at 25°C)	Top	105	102	101	101	102	T. 102
	Bottom	103	100	99.7	99.4	99.4	B. 100
Dissolved oxygen	Top	12.5	12.9	12.9	13.0	13.0	T. 12.9
B. O. D. (5-day, 20°C)	Top	3.6	3.3	3.0	3.3	2.5	T. 3.1
Silica (SiO_2)	Bottom	4.0		3.9		4.1	B. 4.0
Iron (Fe)	Bottom	.15		.16		.18	B. .16
Calcium (Ca)	Bottom	10		9.6		9.9	B. 9.8
Magnesium (Mg)	Bottom	3.8		3.7		3.5	B. 3.7
Sodium (Na)	Bottom	3.1		4.2		3.4	B. 3.6
Bicarbonate (HCO_3)	Bottom	23		25		24	B. 24
Sulfate (SO_4)	Bottom	19		18		18	B. 18
Chloride (Cl)	Top	3.0	3.0	3.0	3.0	3.0	T. 3.0
	Bottom	4.2	4.0	4.8	4.0	4.2	B. 4.2
Fluoride (F)	Bottom	.2		.2		.1	B. .2
Nitrate (NO_3)	Bottom	2.9		2.3		2.7	B. 2.6
Dissolved solids	Bottom	65		62		65	B. 64
Hardness as $CaCO_3$	Bottom	41		39		39	B. 40
Suspended sediment	Top	Composite					T. 9

Location Bristol, Pa.-Burlington, N. J. Bridge Date April 2, 1951 Sampling study No. 20
Weather Clear Water discharge at Trenton (cfs) 71,500

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:35 a.m.	10:33 a.m.	10:30 a.m.	10:28 a.m.	10:25 a.m.	
Sounding (ft)		16	29	43	46	14	
Temperature (°F)	Top	45	45	45	45	45	T. 45
	Bottom	45	45	44	45	45	B. 45
Color	Bottom	14		13		12	B. 13
pH	Top	6.9	6.9	7.0	7.0	7.0	T. 7.0
	Bottom	6.9	7.0	6.7	7.0	6.8	B. 6.9
Specific conductance (micromhos at 25°C)	Top	62.3	62.3	58.8	57.8	57.8	T. 59.8
	Bottom	60.8	68.0	58.4	60.0	57.9	B. 61.0
Dissolved oxygen	Top	11.8	11.4	11.6	11.5	11.8	T. 11.6
B. O. D. (5-day, 20°C)	Top	2.8	2.8	1.6	1.7	2.4	T. 2.3
Silica (SiO_2)	Bottom	—		—		—	B. —
Iron (Fe)	Bottom	—		—		—	B. —
Calcium (Ca)	Bottom	—		—		—	B. —
Magnesium (Mg)	Bottom	—		—		—	B. —
Sodium (Na)	Bottom	—		—		—	B. —
Bicarbonate (HCO_3)	Bottom	12		11		11	B. 11
Sulfate (SO_4)	Bottom	12		12		12	B. 12
Chloride (Cl)	Top	3.0	3.0	3.0	3.0	2.0	T. 2.8
	Bottom	2.5	3.0	2.6	3.0	2.4	B. 2.7
Fluoride (F)	Bottom	—		—		—	B. —
Nitrate (NO_3)	Bottom	2.5		2.4		2.4	B. 2.4
Dissolved solids	Bottom	—		—		—	B. —
Hardness as $CaCO_3$	Bottom	23		24		23	B. 23
Suspended sediment	Top	Composite					T. 103

Table 7. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Bristol, Pa.-Burlington, N. J. Bridge Date May 1, 1951 Sampling study No. 21
Weather Clear Water discharge at Trenton (cfs) 13,000

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:24 a.m.	10:21 a.m.	10:19 a.m.	10:17 a.m.	10:15 a.m.	
Sounding (ft)		19	21	39	43	9	
Temperature (°F)	Top	63	62	62	63	63	T. 63
	Bottom	61	62	61	62	62	B. 62
Color	Bottom	12		12		10	B. 11
pH	Top	6.9	7.1	7.1	7.1	7.0	T. 7.0
	Bottom	7.4	7.2	7.4	7.3	7.3	B. 7.3
Specific conductance (micromhos at 25°C)	Top	128	122	116	114	113	T. 119
	Bottom	113	125	116	116	124	B. 119
Dissolved oxygen	Top	8.9	8.9	9.0	8.9	8.9	T. 8.9
B. O. D. (5-day, 20°C)	Top	2.5	2.6	2.0	2.1	2.2	T. 2.3
Silica (SiO_2)	Bottom	5.4		5.7		6.7	B. 5.9
Iron (Fe)	Bottom	.16		.12		.08	B. .12
Calcium (Ca)	Bottom	11		11		11	B. 11
Magnesium (Mg)	Bottom	4.0		4.0		4.2	B. 4.1
Sodium (Na)	Bottom	4.0		3.4		4.5	B. 4.0
Bicarbonate (HCO_3)	Bottom	30		28		29	B. 29
Sulfate (SO_4)	Bottom	20		20		22	B. 21
Chloride (Cl)	Top	5.0	5.0	5.0	5.0	5.0	T. 5.0
	Bottom	4.2	5.0	4.5	5.0	4.8	B. 4.7
Fluoride (F)	Bottom	.0		.0		.0	B. .0
Nitrate (NO_3)	Bottom	2.0		1.7		1.7	B. 1.8
Dissolved solids	Bottom	71		71		76	B. 73
Hardness as $CaCO_3$	Bottom	44		44		45	B. 44
Suspended sediment	Top	Composite					T. 142

Location Bristol, Pa.-Burlington, N. J. Bridge Date June 7, 1951 Sampling study No. 22
Weather Cloudy Water discharge at Trenton (cfs) 8,670

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:16 a.m.	11:14 a.m.	11:12 a.m.	11:10 a.m.	11:08 a.m.	
Sounding (ft)		19	29	36	23	14	
Temperature (°F)	Top	73	73	73	73	73	T. 73
	Bottom	72	72	73	73	73	B. 73
Color	Bottom	20		23		20	B. 21
pH	Top	6.8	6.9	6.9	6.9	7.0	T. 6.9
	Bottom	7.4	7.4	7.2	7.4	7.3	B. 7.3
Specific conductance (micromhos at 25°C)	Top	159	141	141	138	138	T. 143
	Bottom	144	142	143	139	138	B. 141
Dissolved oxygen	Top	6.6	6.9	6.8	7.0	7.1	T. 6.9
B. O. D. (5-day, 20°C)	Top	4.5	2.1	1.9	2.2	2.6	T. 2.7
Silica (SiO_2)	Bottom	4.5		4.8		4.4	B. 4.6
Iron (Fe)	Bottom	.27		.28		.23	B. .26
Calcium (Ca)	Bottom	13		13		13	B. 13
Magnesium (Mg)	Bottom	5.2		5.2		5.2	B. 5.2
Sodium (Na)	Bottom	4.5		4.9		4.0	B. 4.5
Bicarbonate (HCO_3)	Bottom	37		38		37	B. 37
Sulfate (SO_4)	Bottom	23		23		22	B. 23
Chloride (Cl)	Top	7.0	5.0	5.0	5.0	5.0	T. 5.4
	Bottom	5.2	5.0	5.0	5.0	5.0	B. 5.0
Fluoride (F)	Bottom	.0		.1		.1	B. .1
Nitrate (NO_3)	Bottom	3.6		3.9		3.0	B. 3.5
Dissolved solids	Bottom	84		84		83	B. 84
Hardness as $CaCO_3$	Bottom	54		54		54	B. 54
Suspended sediment	Top	Composite					T. 19

Table 7. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Bristol, Pa.-Burlington, N. J. Bridge Date July 5, 1951 Sampling study No. 23
Weather Cloudy Water discharge at Trenton (cfs) 9,190

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:33 a.m.	11:31 a.m.	11:29 a.m.	11:27 a.m.	11:25 a.m.	
Sounding (ft)		20	27	45	40	20	
Temperature (°F)	Top	76	76	76	76	76	T. 76
	Bottom	76	76	76	76	76	B. 76
Color	Bottom	10		8		8	B. 9
pH	Top	7.2	7.2	7.2	7.2	7.2	T. 7.2
	Bottom	7.2	7.2	7.4	7.4	7.4	B. 7.3
Specific conductance (micromhos at 25°C)	Top	145	140	145	154	139	T. 145
	Bottom	149	141	144	143	144	B. 144
Dissolved oxygen	Top	6.1	6.4	6.7	6.3	6.5	T. 6.4
B. O. D. (5-day, 20°C)	Top	1.8	1.8	1.6	1.1	1.5	T. 1.6
Silica (SiO_2)	Bottom	4.9		5.0		5.1	B. 5.0
Iron (Fe)	Bottom	.10		.12		.11	B. .11
Calcium (Ca)	Bottom	16		16		16	B. 16
Magnesium (Mg)	Bottom	5.3		5.3		5.2	B. 5.3
Sodium (Na)	Bottom	2.7		1.2		1.4	B. 1.8
Bicarbonate (HCO_3)	Bottom	40		40		40	B. 40
Sulfate (SO_4)	Bottom	24		22		22	B. 23
Chloride (Cl)	Top	5.0	5.0	5.0	5.0	5.0	T. 5.0
	Bottom	5.0	5.0	4.2	5.0	4.5	B. 4.7
Fluoride (F)	Bottom	.0		.0		.0	B. .0
Nitrate (NO_3)	Bottom	3.5		3.2		3.0	B. 3.2
Dissolved solids	Bottom	98		99		94	B. 97
Hardness as $CaCO_3$	Bottom	62		62		61	B. 62
Suspended sediment	Top	Composite					T. 17

Location Bristol, Pa.-Burlington, N. J. Bridge Date August 1, 1951 Sampling study No. 24
Weather Cloudy Water discharge at Trenton (cfs) 12,400

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:48 a.m.	10:46 a.m.	10:44 a.m.	10:42 a.m.	10:40 a.m.	
Sounding (ft)		22	25	38	44	30	
Temperature (°F)	Top	76	76	76	76	76	T. 76
	Bottom	76	76	76	76	76	B. 76
Color	Bottom	6		6		6	B. 6
pH	Top	6.8	6.9	6.9	6.9	6.9	T. 6.9
	Bottom	7.3	7.0	7.7	7.0	7.9	B. 7.4
Specific conductance (micromhos at 25°C)	Top	163	158	157	157	157	T. 158
	Bottom	158	161	155	158	154	B. 157
Dissolved oxygen	Top	7.0	7.1	7.4	7.3	7.2	T. 7.2
B. O. D. (5-day, 20°C)	Top	1.3	1.0	1.5	2.0	2.8	T. 1.7
Silica (SiO_2)	Bottom	3.9		3.4		4.7	B. 4.0
Iron (Fe)	Bottom	.02		.02		.02	B. .02
Calcium (Ca)	Bottom	17		17		17	B. 17
Magnesium (Mg)	Bottom	5.2		5.2		5.2	B. 5.2
Sodium (Na)	Bottom	4.0		3.3		3.2	B. 3.5
Bicarbonate (HCO_3)	Bottom	40		40		40	B. 40
Sulfate (SO_4)	Bottom	32		30		30	B. 31
Chloride (Cl)	Top	4.0	4.0	4.0	4.0	4.0	T. 4.0
	Bottom	4.5	4.0	4.0	4.0	3.9	B. 4.1
Fluoride (F)	Bottom	.1		.1		.1	B. .1
Nitrate (NO_3)	Bottom	5.1		5.1		4.3	B. 4.8
Dissolved solids	Bottom	108		101		105	B. 105
Hardness as $CaCO_3$	Bottom	64		64		64	B. 64
Suspended sediment	Top	Composite					T. 24

Table 7. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Bristol, Pa.-Burlington, N. J. Bridge Date September 6, 1951 Sampling study No. 25
Weather Rain Water discharge at Trenton (cfs) 3,810

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:28 a.m.	11:26 a.m.	11:24 a.m.	11:22 a.m.	11:20 a.m.	
Sounding (ft)		9	25	41	39	15	
Temperature (°F)	Top	74	74	75	75	75	T. 75
	Bottom	74	74	74	75	75	B. 74
Color	Bottom	5		5		5	B. 5
pH	Top	7.1	6.9	6.9	7.0	7.2	T. 7.0
	Bottom	7.9	7.6	8.0	7.7	8.0	B. 7.8
Specific conductance (micromhos at 25°C)	Top	252	207	206	206	206	T. 215
	Bottom	232	185	201	194	202	B. 203
Dissolved oxygen	Top	6.1	6.8	6.8	6.6	7.3	T. 6.7
B. O. D. (5-day, 20°C)	Top	5.9	3.3	2.9	2.5	3.5	T. 3.6
Silica (SiO_2)	Bottom	3.1		3.6		2.9	B. 3.2
Iron (Fe)	Bottom	.02		.01		.02	B. .02
Calcium (Ca)	Bottom	20		20		20	B. 20
Magnesium (Mg)	Bottom	7.3		7.2		7.2	B. 7.2
Sodium (Na)	Bottom	13		7.0		6.8	B. 8.9
Bicarbonate (HCO_3)	Bottom	62		61		60	B. 61
Sulfate (SO_4)	Bottom	37		31		32	B. 33
Chloride (Cl)	Top	10	6.0	6.0	6.0	6.0	T. 6.8
	Bottom	12	7.0	7.5	7.0	7.2	B. 8.1
Fluoride (F)	Bottom	.1		.1		.1	B. .1
Nitrate (NO_3)	Bottom	5.4		4.9		4.8	B. 5.0
Dissolved solids	Bottom	138		131		130	B. 133
Hardness as $CaCO_3$	Bottom	80		80		80	B. 80
Suspended sediment	Top	Composite					T. 16

Location Bristol, Pa.-Burlington, N. J. Bridge Date October 2, 1951 Sampling study No. 26
Weather Clear Water discharge at Trenton (cfs) 2,990

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:44 a.m.	11:42 a.m.	11:39 a.m.	11:36 a.m.	11:33 a.m.	
Sounding (ft)		22	30	45	30	13	
Temperature (°F)	Top	70	69	70	69	70	T. 70
	Bottom	68	67	67	67	68	B. 67
Color	Bottom	8		9		6	B. 8
pH	Top	6.7	6.9	6.8	6.9	6.8	T. 6.8
	Bottom	7.9	6.8	7.9	6.8	7.9	B. 7.5
Specific conductance (micromhos at 25°C)	Top	217	216	226	212	208	T. 216
	Bottom	217	202	209	192	202	B. 204
Dissolved oxygen	Top	7.5	8.0	7.8	7.8	7.7	T. 7.8
B. O. D. (5-day, 20°C)	Top	3.7	4.1	2.9	1.8	2.3	T. 3.0
Silica (SiO_2)	Bottom	3.2		6.0		3.2	B. 4.1
Iron (Fe)	Bottom	.04		.05		.05	B. .05
Calcium (Ca)	Bottom	21		21		21	B. 21
Magnesium (Mg)	Bottom	7.2		7.3		7.2	B. 7.2
Sodium (Na)	Bottom	9.2		8.3		8.3	B. 8.6
Bicarbonate (HCO_3)	Bottom	60		62		60	B. 61
Sulfate (SO_4)	Bottom	37		37		36	B. 37
Chloride (Cl)	Top	10	10	11	10	9.0	T. 10
	Bottom	11	11	10	11	10	B. 11
Fluoride (F)	Bottom	.0		.0		.0	B. .0
Nitrate (NO_3)	Bottom	5.3		5.2		8.9	B. 6.5
Dissolved solids	Bottom	130		209		202	B. 180
Hardness as $CaCO_3$	Bottom	82		82		82	B. 82
Suspended sediment	Top	Composite					T. 25

Table 7.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.--Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Bristol, Pa.-Burlington, N. J. Bridge Date November 7, 1951 Sampling study No. 27
Weather Cloudy Water discharge at Trenton (cfs) 37,700

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:55 p.m.	12:50 p.m.	12:45 p.m.	12:40 p.m.	12:30 p.m.	
Sounding (ft)		15	29	41	42	15	
Temperature (°F)	Top	46	45	45	48	46	T. 46
	Bottom	48	44	44	42	45	B. 44
Color	Bottom	8		8		8	B. 8
pH	Top	6.8	6.5	6.6	6.6	6.6	T. 6.5
	Bottom	7.1	6.9	7.0	6.7	7.3	B. 7.0
Specific conductance (micromhos at 25°C)	Top	128	95.8	94.0	96.0	93.0	T. 101
	Bottom	124	89.9	97.2	92.4	95.6	B. 100
Dissolved oxygen	Top	11.2	11.5	11.4	11.5	11.2	T. 11.4
B. O. D. (5-day, 20°C)	Top	8.3	2.2	1.8	1.8	1.2	T. 3.1
Silica (SiO_2)	Bottom	4.8		5.3		4.8	B. 5.0
Iron (Fe)	Bottom	.03		.02		.02	B. .02
Calcium (Ca)	Bottom	9.6		9.8		9.2	B. 9.5
Magnesium (Mg)	Bottom	2.9		3.1		3.1	B. 3.0
Sodium (Na)	Bottom	7.2		2.4		2.4	B. 4.0
Bicarbonate (HCO_3)	Bottom	11		20		20	B. 17
Sulfate (SO_4)	Bottom	27		19		19	B. 22
Chloride (Cl)	Top	7.0	3.0	2.0	3.0	2.0	T. 3.4
	Bottom	7.1	3.0	3.1	3.0	3.0	B. 3.8
Fluoride (F)	Bottom	.1		.1		.1	B. .1
Nitrate (NO_3)	Bottom	6.5		4.6		4.1	B. 5.1
Dissolved solids	Bottom	86		75		70	B. 77
Hardness as $CaCO_3$	Bottom	36		37		36	B. 36
Suspended sediment	Top	Composite					T. 29

Location Bristol, Pa.-Burlington, N. J. Bridge Date December 5, 1951 Sampling study No. 28
Weather Rain Water discharge at Trenton (cfs) 12,500

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		1:14 p.m.	1:12 p.m.	1:10 p.m.	1:08 p.m.	1:06 p.m.	
Sounding (ft)		15	25	41	34	26	
Temperature (°F)	Top	42	42	42	43	43	T. 42
	Bottom	42	42	44	42	43	B. 43
Color	Bottom	9		8		8	B. 8
pH	Top	6.8	6.9	7.0	7.0	6.7	T. 6.9
	Bottom	7.6	7.3	7.6	7.5	7.5	B. 7.5
Specific conductance (micromhos at 25°C)	Top	131	128	128	129	131	T. 129
	Bottom	136	123	128	124	130	B. 128
Dissolved oxygen	Top	12.0	11.8	12.2	12.1	12.2	T. 12.1
B. O. D. (5-day, 20°C)	Top	3.8	2.6	2.8	3.2	4.0	T. 3.3
Silica (SiO_2)	Bottom	5.7		5.7		6.5	B. 6.0
Iron (Fe)	Bottom	.02		.02		.02	B. .02
Calcium (Ca)	Bottom	13		13		13	B. 13
Magnesium (Mg)	Bottom	4.3		4.3		4.0	B. 4.2
Sodium (Na)	Bottom	4.6		3.4		3.6	B. 3.9
Bicarbonate (HCO_3)	Bottom	34		34		32	B. 33
Sulfate (SO_4)	Bottom	24		23		24	B. 24
Chloride (Cl)	Top	4.0	4.0	4.0	4.0	4.0	T. 4.0
	Bottom	4.9	3.0	3.8	3.0	3.8	B. 3.7
Fluoride (F)	Bottom	.0		.0		.0	B. .0
Nitrate (NO_3)	Bottom	3.6		3.5		3.8	B. 3.6
Dissolved solids	Bottom	89		87		97	B. 91
Hardness as $CaCO_3$	Bottom	50		50		49	B. 50
Suspended sediment	Top	Composite					T. 13

Table 7.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.--Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Bristol, Pa.-Burlington, N. J. Bridge Date January 3, 1952 Sampling study No. 29
Weather Clear Water discharge at Trenton (cfs) 30,500

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:47 a.m.	11:45 a.m.	11:43 a.m.	11:40 a.m.	11:35 a.m.	
Sounding (ft)		24	26	38	42	22	
Temperature (°F)	Top	39	39	39	40	39	T. 39
	Bottom	38	38	39	39	39	B. 39
Color	Bottom	8		5		5	B. 6
pH	Top	7.1	7.2	7.2	7.3	7.2	T. 7.2
	Bottom	6.7	7.4	7.2	7.2	7.1	B. 7.1
Specific conductance (micromhos at 25°C)	Top	121	122	122	123	123	T. 122
	Bottom	123	117	118	117	122	B. 119
Dissolved oxygen	Top	11.1	11.2	11.1	9.6	10.7	T. 10.7
B. O. D. (5-day, 20°C)	Top	1.8	1.7	1.0	1.1	1.4	T. 1.4
Silica (SiO_2)	Bottom	6.2		4.9		5.9	B. 5.7
Iron (Fe)	Bottom	.04		.01		.00	B. .02
Calcium (Ca)	Bottom	12		14		14	B. 13
Magnesium (Mg)	Bottom	4.6		6.0		5.8	B. 5.5
Sodium (Na)	Bottom	2.2		a1.0		a.6	B. —
Bicarbonate (HCO_3)	Bottom	29		31		37	B. 32
Sulfate (SO_4)	Bottom	22		26		18	B. 22
Chloride (Cl)	Top	3.0	3.0	2.0	3.0	4.0	T. 3.0
	Bottom	3.2	2.0	4.0	2.0	4.0	B. 3.0
Fluoride (F)	Bottom	.1		.0		.1	B. .1
Nitrate (NO_3)	Bottom	3.1		4.5		6.3	B. 4.6
Dissolved solids	Bottom	98		77		78	B. 84
Hardness as $CaCO_3$	Bottom	49		60		59	B. 56
Suspended sediment	Top	Composite					T. 20

a Calculated Sodium and Potassium.

Location Bristol, Pa.-Burlington, N. J. Bridge Date February 5, 1952 Sampling study No. 30
Weather Clear Water discharge at Trenton (cfs) 39,800

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:17 a.m.	10:15 a.m.	10:10 a.m.	10:02 a.m.	10:00 a.m.	
Sounding (ft)		22	30	48	42	18	
Temperature (°F)	Top	40	41	40	40	42	T. 41
	Bottom	40	40	41	40	41	B. 40
Color	Bottom	12		12		12	B. 12
pH	Top	6.6	6.4	6.5	6.5	6.4	T. 6.5
	Bottom	6.2	7.6	6.0	7.5	5.9	B. 6.6
Specific conductance (micromhos at 25°C)	Top	106	105	116	106	103	T. 107
	Bottom	105	102	104	103	107	B. 104
Dissolved oxygen	Top	12.5	12.4	12.1	12.4	11.6	T. 12.2
B. O. D. (5-day, 20°C)	Top	3.2	3.3	2.7	4.1	2.4	T. 3.1
Silica (SiO_2)	Bottom	5.8		5.7		4.0	B. 5.2
Iron (Fe)	Bottom	.06		.07		.02	B. .05
Calcium (Ca)	Bottom	9.8		9.2		9.8	B. 9.6
Magnesium (Mg)	Bottom	4.2		4.5		4.0	B. 4.2
Sodium (Na)	Bottom	2.4		1.9		2.0	B. 2.1
Bicarbonate (HCO_3)	Bottom	23		21		20	B. 21
Sulfate (SO_4)	Bottom	20		20		21	B. 20
Chloride (Cl)	Top	3.0	2.0	6.0	2.0	3.0	T. 3.2
	Bottom	3.5	3.0	3.5	3.0	3.5	B. 3.3
Fluoride (F)	Bottom	.1		.1		.1	B. .1
Nitrate (NO_3)	Bottom	3.4		3.4		3.6	B. 3.5
Dissolved solids	Bottom	79		76		78	B. 78
Hardness as $CaCO_3$	Bottom	42		41		41	B. 41
Suspended sediment	Top	Composite					T. 73

Table 7. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Bristol, Pa.-Burlington, N. J. Bridge Date March 5, 1952 Sampling study No. 31
Weather Overcast Water discharge at Trenton (cfs) 9,730

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:41 a.m.	10:38 a.m.	10:35 a.m.	10:33 a.m.	10:30 a.m.	
Sounding (ft)		12	40	40	35	23	
Temperature (°F)	Top	39	39	39	40	40	T. 39
	Bottom	38	38	38	39	39	B. 38
Color	Bottom	4		3		4	B. 4
pH	Top	6.6	6.7	6.7	6.8	6.8	T. 6.7
	Bottom	7.6	7.8	7.9	7.7	7.8	B. 7.8
Specific conductance (micromhos at 25°C)	Top	155	157	155	153	154	T. 155
	Bottom	153	150	147	143	143	B. 147
Dissolved oxygen	Top	11.2	11.6	10.0	10.9	11.4	T. 11.0
B. O. D. (5-day, 20°C)	Top	2.8	3.0	.7	1.6	1.8	T. 2.0
Silica (SiO_2)	Bottom	5.0		4.6		4.8	B. 4.8
Iron (Fe)	Bottom	.08		.10		.08	B. .09
Calcium (Ca)	Bottom	14		14		15	B. 14
Magnesium (Mg)	Bottom	5.2		5.0		4.9	B. 5.0
Sodium (Na)	Bottom	5.8		5.8		4.0	B. 5.2
Bicarbonate (HCO_3)	Bottom	38		38		37	B. 38
Sulfate (SO_4)	Bottom	27		26		25	B. 26
Chloride (Cl)	Top	6.0	6.0	6.0	5.0	5.0	T. 5.6
	Bottom	6.4	7.0	5.9	6.0	5.0	B. 6.1
Fluoride (F)	Bottom	.0		.1		.1	B. .1
Nitrate (NO_3)	Bottom	5.3		4.8		4.6	B. 4.9
Dissolved solids	Bottom	89		86		85	B. 87
Hardness as $CaCO_3$	Bottom	56		56		58	B. 57
Suspended sediment	Top	Composite					T. 9

Location Bristol, Pa.-Burlington, N. J. Bridge Date April 2, 1952 Sampling study No. 32
Weather Overcast Water discharge at Trenton (cfs) 22,700

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:42 a.m.	10:39 a.m.	10:36 a.m.	10:33 a.m.	10:30 a.m.	
Sounding (ft)		14	29	43	36	10	
Temperature (°F)	Top	49	48	49	49	49	T. 49
	Bottom	48	48	48	48	48	B. 48
Color	Bottom	4		3		4	B. 4
pH	Top	6.5	6.8	6.7	6.8	6.8	T. 6.7
	Bottom	7.0	7.5	7.1	7.6	7.0	B. 7.2
Specific conductance (micromhos at 25°C)	Top	105	101	98.9	99.2	98.6	T. 101
	Bottom	97.1	99.7	94.7	96.7	93.9	B. 96.4
Dissolved oxygen	Top	10.0	9.9	9.7	9.4	8.5	T. 9.5
B. O. D. (5-day, 20°C)	Top	1.9	.9	.5	.6	.0	T. .8
Silica (SiO_2)	Bottom	4.6		4.6		4.4	B. 4.5
Iron (Fe)	Bottom	.04		.06		.04	B. .05
Calcium (Ca)	Bottom	9.7		9.8		9.8	B. 9.8
Magnesium (Mg)	Bottom	2.9		3.6		3.1	B. 3.2
Sodium (Na)	Bottom	4.6		2.2		3.6	B. 3.5
Bicarbonate (HCO_3)	Bottom	26		23		26	B. 25
Sulfate (SO_4)	Bottom	18		19		18	B. 18
Chloride (Cl)	Top	4.0	3.0	3.0	3.0	3.0	T. 3.2
	Bottom	3.5	4.0	3.2	4.0	2.8	B. 3.5
Fluoride (F)	Bottom	.0		.0		.0	B. .0
Nitrate (NO_3)	Bottom	3.8		3.5		3.6	B. 3.6
Dissolved solids	Bottom	68		66		71	B. 68
Hardness as $CaCO_3$	Bottom	36		39		37	B. 37
Suspended sediment	Top	Composite					T. 13

Table 7.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.--Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Bristol, Pa.-Burlington, N. J. Bridge Date May 5, 1952 Sampling study No. 33
Weather Rain Water discharge at Trenton (cfs) 18,700

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:30 a.m.	11:27 a.m.	11:25 a.m.	11:22 a.m.	11:20 a.m.	
Sounding (ft)		14	28	43	50	15	
Temperature (°F)	Top	57	57	57	57	57	T. 57
	Bottom	58	58	57	57	57	B. 57
Color	Bottom	6		5		6	B. 6
pH	Top	6.8	6.9	7.4	6.9	6.9	T. 7.0
	Bottom	7.0	6.6	7.0	6.9	6.9	B. 6.9
Specific conductance (micromhos at 25°C)	Top	116	116	118	115	118	T. 117
	Bottom	114	125	112	116	110	B. 115
Dissolved oxygen	Top	9.2	9.3	9.2	9.2	9.6	T. 9.3
B.O.D. (5-day, 20°C)	Top	1.4	.8	.8	.9	1.4	T. 1.1
Silica (SiO_2)	Bottom	7.3		5.4		5.5	B. 6.1
Iron (Fe)	Bottom	.02		.04		.08	B. .05
Calcium (Ca)	Bottom	12		12		11	B. 12
Magnesium (Mg)	Bottom	3.9		3.9		3.5	B. 3.8
Sodium (Na)	Bottom	2.9		3.3		4.0	B. 3.4
Bicarbonate (HCO_3)	Bottom	33		34		27	B. 31
Sulfate (SO_4)	Bottom	20		20		21	B. 20
Chloride (Cl)	Top	4.0	3.0	3.0	4.0	4.0	T. 3.6
	Bottom	3.0	3.0	2.9	2.0	3.8	B. 2.9
Fluoride (F)	Bottom	.0		.0		.1	B. .0
Nitrate (NO_3)	Bottom	3.0		3.0		3.9	B. 3.3
Dissolved solids	Bottom	77		76		68	B. 74
Hardness as $CaCO_3$	Bottom	46		46		42	B. 45
Suspended sediment	Top	Composite					T. 11

Location Bristol, Pa.-Burlington, N. J. Bridge Date June 4, 1952 Sampling study No. 34
Weather Cloudy Water discharge at Trenton (cfs) 28,600

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:06 a.m.	11:04 a.m.	11:02 a.m.	11:00 a.m.	10:58 a.m.	
Sounding (ft)		14	25	46	31	11	
Temperature (°F)	Top	68	68	68	68	68	T. 68
	Bottom	69	68	67	69	68	B. 68
Color	Bottom	17		16		12	B. 15
pH	Top	6.8	6.8	6.7	6.8	6.8	T. 6.8
	Bottom	6.9	6.8	6.9	6.8	5.7	B. 6.6
Specific conductance (micromhos at 25°C)	Top	86.4	86.9	83.8	82.9	87.9	T. 85.6
	Bottom	86.6	86.6	81.6	83.6	84.3	B. 84.5
Dissolved oxygen	Top	8.1	8.2	8.1	8.0	8.0	T. 8.1
B.O.D. (5-day, 20°C)	Top	1.4	1.4	1.1	1.2	1.1	T. 1.2
Silica (SiO_2)	Bottom	5.3		5.4		4.6	B. 5.1
Iron (Fe)	Bottom	.03		.02		.06	B. .04
Calcium (Ca)	Bottom	8.8		8.6		8.8	B. 8.7
Magnesium (Mg)	Bottom	2.7		2.6		2.8	B. 2.7
Sodium (Na)	Bottom	3.6		2.2		2.4	B. 2.7
Bicarbonate (HCO_3)	Bottom	24		20		24	B. 23
Sulfate (SO_4)	Bottom	16		16		15	B. 16
Chloride (Cl)	Top	2.0	2.0	1.0	2.0	2.0	T. 1.8
	Bottom	3.2	2.0	2.5	1.0	2.2	B. 2.2
Fluoride (F)	Bottom	.1		.1		.1	B. .1
Nitrate (NO_3)	Bottom	2.2		2.1		2.3	B. 2.2
Dissolved solids	Bottom	56		52		53	B. 54
Hardness as $CaCO_3$	Bottom	33		32		33	B. 33
Suspended sediment	Top	Composite					T. 12

Table 7. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Bristol, Pa.-Burlington, N. J. Bridge Date July 7, 1952 Sampling study No. 35
Weather Light Clouds Water discharge at Trenton (cfs) 3,370

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:34 a.m.	11:32 a.m.	11:30 a.m.	11:28 a.m.	11:26 a.m.	
Sounding (ft)		23	29	48	22	16	
Temperature (°F)	Top	80	81	81	81	81	T. 81
	Bottom	80	81	80	81	80	B. 80
Color	Bottom	7		7		7	B. 7
pH	Top	6.9	7.0	7.0	7.0	7.2	T. 7.0
	Bottom	7.3	6.9	7.3	6.9	7.2	B. 7.1
Specific conductance (micromhos at 25°C)	Top	192	189	188	188	197	T. 191
	Bottom	190	188	188	189	188	B. 189
Dissolved oxygen	Top	4.4	4.5	4.7	4.5	4.5	T. 4.5
B. O. D. (5-day, 20°C)	Top	1.3	.7	1.3	.0	.4	T. .7
Silica (SiO_2)	Bottom	5.8		5.0		5.5	B. 5.4
Iron (Fe)	Bottom	.03		.03		.02	B. .03
Calcium (Ca)	Bottom	19		19		19	B. 19
Magnesium (Mg)	Bottom	7.1		7.1		7.2	B. 7.1
Sodium (Na)	Bottom	5.6		5.4		6.4	B. 5.8
Bicarbonate (HCO_3)	Bottom	60		60		63	B. 61
Sulfate (SO_4)	Bottom	30		29		29	B. 29
Chloride (Cl)	Top	6.0	6.0	6.0	6.0	6.0	T. 6.0
	Bottom	5.2	6.0	5.2	6.0	5.5	B. 5.6
Fluoride (F)	Bottom	.1		.1		.1	B. .1
Nitrate (NO_3)	Bottom	5.2		5.1		4.9	B. 5.1
Dissolved solids	Bottom	111		108		110	B. 110
Hardness as $CaCO_3$	Bottom	77		77		77	B. 77
Suspended sediment	Top	Composite					T. 45

Location Bristol, Pa.-Burlington, N. J. Bridge Date August 6, 1952 Sampling study No. 36
Weather Cloudy Water discharge at Trenton (cfs) 4,020

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:05 a.m.	11:04 a.m.	11:02 a.m.	11:00 a.m.	10:58 a.m.	
Sounding (ft)		9	22	30	41	27	
Temperature (°F)	Top	78	78	78	78	79	T. 78
	Bottom	78	78	79	79	79	B. 79
Color	Bottom	6		5		6	B. 6
pH	Top	6.7	6.7	6.8	6.8	6.8	T. 6.8
	Bottom	7.4	6.9	7.3	6.9	7.3	B. 7.2
Specific conductance (micromhos at 25°C)	Top	197	177	173	172	172	T. 178
	Bottom	173	171	171	174	171	B. 172
Dissolved oxygen	Top	5.9	6.3	6.3	6.2	6.2	T. 6.2
B. O. D. (5-day, 20°C)	Top	8.2	5.6	5.6	6.3	6.3	T. 6.4
Silica (SiO_2)	Bottom	4.6		4.1		4.1	B. 4.3
Iron (Fe)	Bottom	.01		.01		.01	B. .01
Calcium (Ca)	Bottom	17		17		16	B. 17
Magnesium (Mg)	Bottom	5.9		6.0		5.9	B. 5.9
Sodium (Na)	Bottom	6.6		5.6		7.0	B. 6.4
Bicarbonate (HCO_3)	Bottom	46		46		46	B. 46
Sulfate (SO_4)	Bottom	30		29		29	B. 29
Chloride (Cl)	Top	12	8.5	7.0	7.0	7.0	T. 8.3
	Bottom	6.8	7.0	6.6	7.5	6.8	B. 6.9
Fluoride (F)	Bottom	.1		.1		.1	B. .1
Nitrate (NO_3)	Bottom	5.7		4.9		5.8	B. 5.5
Dissolved solids	Bottom	103		101		101	B. 102
Hardness as $CaCO_3$	Bottom	67		67		64	B. 66
Suspended sediment	Top	Composite					T. 18

Table 7. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Bristol, Pa.-Burlington, N. J. Bridge Date September 3, 1952 Sampling study No. 37
Weather Clear Water discharge at Trenton (cfs) 32,000

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		11:35 a.m.	11:32 a.m.	11:28 a.m.	11:25 a.m.	11:20 a.m.		
Sounding (ft)		13	32	b50	42	10		
Temperature (°F)	Top	74	74	74	75	74	T.	74
	Bottom	74	74	74	74	74	B.	74
Color	Bottom	5		6		3	B.	5
pH	Top	6.8	6.6	6.6	6.6	6.6	T.	6.6
	Bottom	7.3	6.5	7.3	6.5	7.4	B.	7.0
Specific conductance (micromhos at 25°C)	Top	140	136	135	137	138	T.	137
	Bottom	139	134	137	132	136	B.	136
Dissolved oxygen	Top	7.3	7.3	7.1	6.8	6.8	T.	7.1
B. O. D. (5-day, 20°C)	Top	2.5	2.1	1.9	1.6	2.0	T.	2.0
Silica (SiO_2)	Bottom	3.8		3.6		3.2	B.	3.5
Iron (Fe)	Bottom	.02		.02		.04	B.	.03
Calcium (Ca)	Bottom	14		14		14	B.	14
Magnesium (Mg)	Bottom	6.4		6.4		6.2	B.	6.3
Sodium (Na)	Bottom	a1.0		a.6		a3.1	B.	a1.6
Bicarbonate (HCO_3)	Bottom	34		32		35	B.	34
Sulfate (SO_4)	Bottom	28		27		29	B.	28
Chloride (Cl)	Top	4.5	4.0	4.5	4.5	4.0	T.	4.3
	Bottom	3.0	3.5	3.0	3.5	3.0	B.	3.2
Fluoride (F)	Bottom	.1		.1		.1	B.	.1
Nitrate (NO_3)	Bottom	2.3		4.8		4.6	B.	3.9
Dissolved solids	Bottom	87		86		88	B.	87
Hardness as $CaCO_3$	Bottom	61		61		60	B.	61
Suspended sediment	Top	Composite					T.	31

a Calculated Sodium and Potassium.
b Exceeded this value.

Location Bristol, Pa.-Burlington, N. J. Bridge Date October 6, 1952 Sampling study No. 38
Weather Clear Water discharge at Trenton (cfs) 4,800

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		12:57 p.m.	12:54 p.m.	12:51 p.m.	12:48 p.m.	12:45 p.m.		
Sounding (ft)		12	25	44	31	14		
Temperature (°F)	Top	66	65	65	67	66	T.	66
	Bottom	65	66	64	66	64	B.	65
Color	Bottom	5		5		3	B.	4
pH	Top	6.7	6.8	6.7	6.7	6.6	T.	6.7
	Bottom	7.9	6.5	7.7	6.5	7.7	B.	7.3
Specific conductance (micromhos at 25°C)	Top	214	214	206	206	209	T.	210
	Bottom	209	213	203	206	202	B.	207
Dissolved oxygen	Top	8.9	8.9	8.7	8.6	8.3	T.	8.7
B. O. D. (5-day, 20°C)	Top	3.5	2.5	3.2	2.8	2.7	T.	2.9
Silica (SiO_2)	Bottom	2.4		3.0		2.3	B.	2.6
Iron (Fe)	Bottom	.00		.00		.00	B.	.00
Calcium (Ca)	Bottom	20		20		20	B.	20
Magnesium (Mg)	Bottom	7.6		7.4		7.3	B.	7.4
Sodium (Na)	Bottom	7.5		6.3		6.2	B.	6.7
Bicarbonate (HCO_3)	Bottom	54		52		51	B.	52
Sulfate (SO_4)	Bottom	32		29		30	B.	30
Chloride (Cl)	Top	9.0	9.0	8.0	8.0	8.0	T.	8.4
	Bottom	9.5	9.0	8.5	8.0	8.5	B.	8.7
Fluoride (F)	Bottom	.1		.1		.1	B.	.1
Nitrate (NO_3)	Bottom	7.9		7.7		11	B.	8.9
Dissolved solids	Bottom	123		122		127	B.	124
Hardness as $CaCO_3$	Bottom	81		80		80	B.	80
Suspended sediment	Top	Composite					T.	19

Table 7. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.--Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Bristol, Pa.-Burlington, N. J. Bridge Date November 6, 1952 Sampling study No. 39
Weather Clear Water discharge at Trenton (cfs) 3,130

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		12:42 p.m.	12:39 p.m.	12:36 p.m.	12:32 p.m.	12:30 p.m.		
Sounding (ft)		21	26	29	40	21		
Temperature (°F)	Top	49	49	49	49	49	T.	49
	Bottom	49	49	49	50	48	B.	49
Color	Bottom	5		8		6	B.	6
pH	Top	6.4	6.5	6.5	6.5	6.5	T.	6.5
	Bottom	7.1	6.5	7.6	6.5	7.6	B.	7.1
Specific conductance (micromhos at 25°C)	Top	249	232	229	232	232	T.	235
	Bottom	235	233	227	235	230	B.	232
Dissolved oxygen	Top	9.0	9.3	9.1	9.2	9.5	T.	9.2
B. O. D. (5-day, 20°C)	Top	4.7	2.8	2.6	2.3	2.7	T.	3.0
Silica (SiO_2)	Bottom	2.6		2.8		2.3	B.	2.6
Iron (Fe)	Bottom	.02		.03		.02	B.	.02
Calcium (Ca)	Bottom	22		21		21	B.	21
Magnesium (Mg)	Bottom	8.3		8.9		8.9	B.	8.7
Sodium (Na)	Bottom	8.6		7.5		8.4	B.	8.2
Bicarbonate (HCO_3)	Bottom	54		56		56	B.	55
Sulfate (SO_4)	Bottom	36		33		34	B.	34
Chloride (Cl)	Top	13	9.5	10	10	11	T.	11
	Bottom	11	11	10	10	10	B.	10
Fluoride (F)	Bottom	.1		.1		.1	B.	.1
Nitrate (NO_3)	Bottom	9.7		11		9.8	B.	10
Dissolved solids	Bottom	146		143		137	B.	142
Hardness as $CaCO_3$	Bottom	89		89		89	B.	89
Suspended sediment	Top	Composite					T.	13

Location Bristol, Pa.-Burlington, N. J. Bridge Date December 4, 1952 Sampling study No. 40
Weather Clear Water discharge at Trenton (cfs) 10,300

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		12:28 p.m.	12:31 p.m.	12:34 p.m.	12:37 p.m.	12:40 p.m.		
Sounding (ft)		14	23	44	43	9		
Temperature (°F)	Top	41	39	39	39	39	T.	39
	Bottom	39	40	39	40	39	B.	39
Color	Bottom	5		6		5	B.	5
pH	Top	6.4	6.4	6.5	6.4	6.5	T.	6.4
	Bottom	6.8	6.5	6.9	6.6	7.1	B.	6.8
Specific conductance (micromhos at 25°C)	Top	133	127	124	126	138	T.	130
	Bottom	130	126	125	125	129	B.	127
Dissolved oxygen	Top	12.0	12.3	12.2	12.5	12.1	T.	12.2
B. O. D. (5-day, 20°C)	Top	3.9	3.4	3.0	3.4	3.7	T.	3.5
Silica (SiO_2)	Bottom	5.5		4.3		4.8	B.	4.9
Iron (Fe)	Bottom	.10		.12		.15	B.	.12
Calcium (Ca)	Bottom	12		12		12	B.	12
Magnesium (Mg)	Bottom	4.9		4.8		4.9	B.	4.9
Sodium (Na)	Bottom	4.2		3.2		3.5	B.	3.6
Bicarbonate (HCO_3)	Bottom	23		24		23	B.	23
Sulfate (SO_4)	Bottom	25		22		24	B.	24
Chloride (Cl)	Top	6.0	6.0	5.0	5.0	6.0	T.	5.6
	Bottom	6.0	4.5	5.5	5.0	6.0	B.	5.4
Fluoride (F)	Bottom	.1		.1		.1	B.	.1
Nitrate (NO_3)	Bottom	5.5		5.8		6.4	B.	5.9
Dissolved solids	Bottom	81		78		78	B.	79
Hardness as $CaCO_3$	Bottom	50		50		50	B.	50
Sospended sediment	Top	Composite					T.	25

Table 8.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Torresdale Intake, Philadelphia, Pa. Date August 1, 1949 Sampling study No. 1
Weather Cloudy Water discharge at Trenton (cfs) 3,350

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		1:15 p.m.	1:15 p.m.	1:30 p.m.	1:40 p.m.	1:45 p.m.	
Sounding (ft)			34	14	15		
Temperature (°F)	Top	86	85	85	84	83	T. 85
	Bottom		85	85	84		B. 85
pH	Top	6.0	6.1	6.1	6.3	6.2	T. 6.1
	Bottom		6.2	6.2	6.1		B. 6.2
Specific conductance (micromhos at 25°C)	Top	192	189	185	188	185	T. 188
	Bottom		192	187	185		B. 188
Dissolved oxygen	Top	6.4	6.6	7.3	7.3	7.7	T. 7.1
B. O. D. (5-day, 20°C)	Top	12.0	10.0	10.0	10.0	10.0	T. 10.4
Chloride (Cl)	Top	8.0	8.0	8.0	8.0	9.0	T. 8.2
	Bottom		9.0	8.0	9.0		B. 8.7
Suspended sediment	Top	Composite					T. --

Location Torresdale Intake, Philadelphia, Pa. Date September 6, 1949 Sampling study No. 2
Weather Cloudy Water discharge at Trenton (cfs) 5,310

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		--	--	9:45 a.m.	--	--	
Sounding (ft)			30	24	15		
Temperature (°F)	Top	77	77	77	77	77	T. 77
	Bottom		78	78	76		B. 77
pH	Top	6.8	6.9	6.8	6.7	7.0	T. 6.8
	Bottom		6.7	6.8	6.6		B. 6.7
Specific conductance (micromhos at 25°C)	Top	220	223	218	196	204	T. 212
	Bottom		225	205	184		B. 205
Dissolved oxygen	Top	7.3	6.9	6.8	7.1	7.0	T. 7.0
B. O. D. (5-day, 20°C)	Top	.5	.0	.0	2.0	2.0	T. .9
Chloride (Cl)	Top	12	12	11	12	12	T. 12
	Bottom		11	11	10		B. 11
Suspended sediment	Top	Composite					T. 11

Location Torresdale Intake, Philadelphia, Pa. Date October 4, 1949 Sampling study No. 3
Weather Cloudy Water discharge at Trenton (cfs) 3,520

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		--	--	12:30 p.m.	--	--	
Sounding (ft)			34	38	20		
Temperature (°F)	Top	69	69	69	69	69	T. 69
	Bottom		69	68	66		B. 68
pH	Top	6.7	6.6	6.6	6.8	6.8	T. 6.7
	Bottom		6.5	6.6	6.8		B. 6.6
Specific conductance (micromhos at 25°C)	Top	250	246	238	230	225	T. 238
	Bottom		242	246	228		B. 239
Dissolved oxygen	Top	3.2	2.8	3.8	5.3	6.7	T. 4.4
B. O. D. (5-day, 20°C)	Top	1.5	2.0	.3	.0	1.3	T. 1.0
Chloride (Cl)	Top	16	15	14	12	13	T. 14
	Bottom		14	13	12		B. 13
Suspended sediment	Top	Composite					T. 16

Location Torresdale Intake, Philadelphia, Pa. Date November 1, 1949 Sampling study No. 4
Weather Cloudy Water discharge at Trenton (cfs) 3,340

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		--	--	2:00 p.m.	--	--	
Sounding (ft)			24	40	18		
Temperature (°F)	Top	58	57	57	54	56	T. 56
	Bottom		56	56	56		B. 56
pH	Top	6.8	6.8	6.9	6.9	6.9	T. 6.9
	Bottom		6.8	6.8	6.9		B. 6.8
Specific conductance (micromhos at 25°C)	Top	227	220	209	198	215	T. 214
	Bottom		219	216	209		B. 215
Dissolved oxygen	Top	4.3	4.7	4.9	6.5	6.3	T. 5.3
B. O. D. (5-day, 20°C)	Top	5.5	6.0	5.7	4.6	2.8	T. 4.9
Chloride (Cl)	Top	14	15	12	12	13	T. 13
	Bottom		14	12	12		B. 13
Suspended sediment	Top	Composite					T. 9.2

Table 8. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.--Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Torresdale Intake, Philadelphia, Pa. Date December 1, 1949 Sampling study No. 5
Weather Clear Water discharge at Trenton (cfs) 4,970

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		--	--	1:30 p.m.	--	--	
Sounding (ft)			20	37	18		
Temperature (°F)	Top	44	44	44	44	42	T. 44
	Bottom		44	42	42		B. 43
pH	Top	6.5	6.6	6.6	6.6	6.7	T. 6.6
	Bottom		6.4	6.6	6.5		B. 6.5
Specific conductance (micromhos at 25°C)	Top	155	151	144	140	136	T. 145
	Bottom		150	142	138		B. 143
Dissolved oxygen	Top	9.3	9.4	10.0	9.8	10.3	T. 9.8
B. O. D. (5-day, 20°C)	Top	17.3	12.5	14.0	12.0	13.5	T. 13.9
Chloride (Cl)	Top	8.0	7.0	7.0	7.0	6.0	T. 7.0
	Bottom		8.0	7.0	6.0		B. 7.0
Suspended sediment	Top	Composite					T. 22

Location Torresdale Intake, Philadelphia, Pa. Date January 3, 1950 Sampling study No. 6
Weather Light Rain Water discharge at Trenton (cfs) 11,100

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:55 p.m.	1:00 p.m.	1:04 p.m.	1:08 p.m.	1:13 p.m.	
Sounding (ft)			37	36	18		
Temperature (°F)	Top	--	--	--	--	--	T.
	Bottom		--	--	--		B.
pH	Top	6.3	6.5	6.5	6.5	6.7	T. 6.5
	Bottom		6.4	6.3	6.3		B. 6.3
Specific conductance (micromhos at 25°C)	Top	115	104	100	99.4	102	T. 104
	Bottom		104	102	99.4		B. 102
Dissolved oxygen	Top	11.2	11.1	11.1	11.4	11.0	T. 11.2
B. O. D. (5-day, 20°C)	Top	5.4	2.8	2.8	3.2	1.8	T. 3.2
Chloride (Cl)	Top	7.0	6.0	7.0	6.0	6.0	T. 6.4
	Bottom		7.0	6.0	5.0		B. 6.0
Suspended sediment	Top	Composite					T. 22

Location Torresdale Intake, Philadelphia, Pa. Date February 2, 1950 Sampling study No. 7
Weather Cloudy Water discharge at Trenton (cfs) 13,200

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:45 a.m.	10:47 a.m.	10:50 a.m.	10:55 a.m.	10:59 a.m.	
Sounding (ft)			34	35	15		
Temperature (°F)	Top	40	40	40	40	40	T. 40
	Bottom		40	40	40		B. 40
pH	Top	6.9	6.7	6.9	6.8	6.7	T. 6.8
	Bottom		6.7	6.8	6.9		B. 6.8
Specific conductance (micromhos at 25°C)	Top	124	117	110	108	108	T. 113
	Bottom		118	110	109		B. 112
Dissolved oxygen	Top	11.1	10.8	11.4	10.8	11.0	T. 11.0
B. O. D. (5-day, 20°C)	Top	2.6	2.4	3.0	2.2	3.2	T. 2.7
Chloride (Cl)	Top	6.0	5.0	4.0	5.0	6.0	T. 5.2
	Bottom		6.0	5.0	4.0		B. 5.0
Suspended sediment	Top	Composite					T. 15

Location Torresdale Intake, Philadelphia, Pa. Date March 6, 1950 Sampling study No. 8
Weather Clear Water discharge at Trenton (cfs) 7,080

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:14 a.m.	11:10 a.m.	11:07 a.m.	11:00 a.m.	11:05 a.m.	
Sounding (ft)			32	38	6		
Temperature (°F)	Top	35	35	35	35	35	T. 35
	Bottom		35	35	35		B. 35
pH	Top	7.1	7.0	7.1	7.2	7.4	T. 7.2
	Bottom		7.2	7.2	7.4		B. 7.3
Specific conductance (micromhos at 25°C)	Top	147	145	145	129	123	T. 138
	Bottom		144	143	122		B. 136
Dissolved oxygen	Top	13.7	13.1	13.4	14.0	12.7	T. 13.4
B. O. D. (5-day, 20°C)	Top	5.0	4.9	5.2	4.3	5.0	T. 4.9
Chloride (Cl)	Top	7.0	7.0	7.0	6.0	6.0	T. 6.6
	Bottom		7.0	7.0	6.0		B. 6.7
Suspended sediment	Top	Composite					T. 25

Table 8.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.--Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Torresdale Intake, Philadelphia, Pa. Date April 4, 1950 Sampling study No. 9
Weather Clear Water discharge at Trenton (cfs) 36,600

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:40 p.m.	12:43 p.m.	12:46 p.m.	12:50 p.m.	12:53 p.m.	
Sounding (ft)			32	40	28		
Temperature (°F)	Top	48	46	47	48	47	T. 47
	Bottom		47	48	49		B. 48
pH	Top	6.8	6.9	6.9	6.7	6.8	T. 6.8
	Bottom		6.9	6.9	6.9		B. 6.9
Specific conductance (micromhos at 25°C)	Top	79.2	76.2	75.3	75.7	75.3	T. 76.3
	Bottom		77.1	75.0	75.3		B. 75.8
Dissolved oxygen	Top	10.9	11.1	11.5	10.9	11.1	T. 11.1
B. O. D. (5-day, 20°C)	Top	2.3	2.5	3.0	2.4	2.7	T. 2.6
Chloride (Cl)	Top	3.5	2.5	2.8	2.5	3.0	T. 2.9
	Bottom		3.0	2.8	2.8		B. 2.9
Suspended sediment	Top	Composite					T. 22

Location Torresdale Intake, Philadelphia, Pa. Date May 1, 1950 Sampling study No. 10
Weather Cloudy Water discharge at Trenton (cfs) 12,300

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:23 a.m.	10:26 a.m.	10:30 a.m.	10:35 a.m.	10:36 a.m.	
Sounding (ft)			31	42	10		
Temperature (°F)	Top	53	53	53	53	52	T. 53
	Bottom		53	53	53		B. 53
pH	Top	6.7	6.9	7.1	6.9	6.9	T. 6.9
	Bottom		6.9	6.9	6.7		B. 6.8
Specific conductance (micromhos at 25°C)	Top	110	106	105	105	99.7	T. 105
	Bottom		108	105	105		B. 106
Dissolved oxygen	Top	9.3	10.0	9.5	9.7	9.3	T. 9.6
B. O. D. (5-day, 20°C)	Top	1.2	1.9	1.8	1.8	1.4	T. 1.6
Chloride (Cl)	Top	6.0	6.0	5.0	6.0	4.0	T. 5.4
	Bottom		5.0	5.0	5.0		B. 5.0
Suspended sediment	Top	Composite					T. 15

Location Torresdale Intake, Philadelphia, Pa. Date June 6, 1950 Sampling study No. 11
Weather Misty Water discharge at Trenton (cfs) 18,900

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:27 a.m.	10:30 a.m.	10:35 a.m.	10:37 a.m.	10:42 a.m.	
Sounding (ft)			31	28	17		
Temperature (°F)	Top	68	67	69	69	70	T. 69
	Bottom		70	70	70		B. 70
pH	Top	6.7	6.8	6.8	6.7	6.6	T. 6.7
	Bottom		6.7	6.5	6.7		B. 6.6
Specific conductance (micromhos at 25°C)	Top	112	108	105	105	102	T. 106
	Bottom		108	107	105		B. 107
Dissolved oxygen	Top	5.8	5.9	6.1	6.0	5.8	T. 5.9
B. O. D. (5-day, 20°C)	Top	1.1	.6	1.2	1.5	1.7	T. 1.2
Chloride (Cl)	Top	5.0	5.0	4.0	5.0	5.0	T. 4.8
	Bottom		5.0	4.0	4.0		B. 4.3
Suspended sediment	Top	Composite					T. 19

Location Torresdale Intake, Philadelphia, Pa. Date July 6, 1950 Sampling study No. 12
Weather Cloudy Water discharge at Trenton (cfs) 6,130

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:35 a.m.	11:40 a.m.	11:45 a.m.	11:50 a.m.	11:55 a.m.	
Sounding (ft)			33	30	17		
Temperature (°F)	Top	78	78	78	78	78	T. 78
	Bottom		78	78	78		B. 78
pH	Top	6.7	6.7	6.7	6.7	6.7	T. 6.7
	Bottom		6.7	6.6	6.6		B. 6.6
Specific conductance (micromhos at 25°C)	Top	129	125	125	124	124	T. 125
	Bottom		130	125	126		B. 127
Dissolved oxygen	Top	4.0	4.3	4.5	4.5	4.6	T. 4.4
B. O. D. (5-day, 20°C)	Top	1.7	2.0	2.0	2.0	1.5	T. 1.8
Chloride (Cl)	Top	6.0	6.0	6.0	6.0	7.0	T. 6.2
	Bottom		6.0	6.0	6.0		B. 6.0
Suspended sediment	Top	Composite					T. 34

Table 8.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.--Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Torresdale Intake, Philadelphia, Pa. Date August 2, 1950 Sampling study No. 13
Weather Overcast Water discharge at Trenton (cfs) 5,090

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:20 a.m.	10:18 a.m.	10:15 a.m.	10:12 a.m.	10:10 a.m.	
Sounding (ft)			27	37	9		
Temperature (°F)	Top	78	78	78	77	77	T. 78
	Bottom		78	78	78		B. 78
pH	Top	6.6	6.7	6.7	6.9	6.7	T. 6.7
	Bottom		6.6	6.8	6.7		B. 6.7
Specific conductance (micromhos at 25°C)	Top	159	155	154	160	147	T. 155
	Bottom		157	166	156		B. 160
Dissolved oxygen	Top	5.4	5.6	5.6	5.7	5.8	T. 5.6
B. O. D. (5-day, 20°C)	Top	1.9	2.1	2.3	2.8	2.5	T. 2.3
Chloride (Cl)	Top	6.0	7.0	5.0	7.0	6.0	T. 6.2
	Bottom		7.0	7.0	6.0		B. 6.7
Suspended sediment	Top	Composite					T. 23

Location Torresdale Intake, Philadelphia, Pa. Date September 6, 1950 Sampling study No. 14
Weather Clear Water discharge at Trenton (cfs) 4,860

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		1:40 p.m.	1:44 p.m.	1:47 p.m.	1:51 p.m.	1:54 p.m.	
Sounding (ft)			23	40	13		
Temperature (°F)	Top	76	76	76	76	76	T. 76
	Bottom		76	76	76		B. 76
pH	Top	7.1	7.0	6.9	6.8	6.9	T. 6.9
	Bottom		7.1	7.1	7.0		B. 7.1
Specific conductance (micromhos at 25°C)	Top	172	172	169	169	168	T. 170
	Bottom		173	170	168		B. 170
Dissolved oxygen	Top	5.0	5.0	5.5	5.8	6.0	T. 5.5
B. O. D. (5-day, 20°C)	Top	.9	1.5	1.5	5.1	2.7	T. 2.3
Chloride (Cl)	Top	9.0	9.0	9.0	9.0	9.0	T. 9.0
	Bottom		9.0	9.0	9.0		B. 9.0
Suspended sediment	Top	Composite					T. 16

Location Torresdale Intake, Philadelphia, Pa. Date October 3, 1950 Sampling study No. 15
Weather Misty Water discharge at Trenton (cfs) 2,840

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		1:40 p.m.	1:45 p.m.	1:50 p.m.	1:55 p.m.	2:00 p.m.	
Sounding (ft)			30	33	19		
Temperature (°F)	Top	68	66	66	66	66	T. 66
	Bottom		67	67	66		B. 67
pH	Top	6.7	6.7	6.8	6.7	6.7	T. 6.7
	Bottom		6.7	6.8	6.7		B. 6.7
Specific conductance (micromhos at 25°C)	Top	180	181	171	170	170	T. 174
	Bottom		181	181	179		B. 180
Dissolved oxygen	Top	6.0	6.1	6.4	6.1	6.2	T. 6.2
B. O. D. (5-day, 20°C)	Top	.0	.4	.5	.0	.0	T. .2
Chloride (Cl)	Top	8.0	8.0	7.0	7.0	7.0	T. 7.4
	Bottom		8.0	8.0	7.0		B. 7.7
Suspended sediment	Top	Composite					T. 7

Location Torresdale Intake, Philadelphia, Pa. Date November 2, 1950 Sampling study No. 16
Weather Overcast Water discharge at Trenton (cfs) 2,550

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		1:17 p.m.	1:21 p.m.	1:24 p.m.	1:27 p.m.	1:29 p.m.	
Sounding (ft)			29	31	9		
Temperature (°F)	Top	63	62	62	62	62	T. 62
	Bottom		63	62	62		B. 62
pH	Top	6.8	6.9	6.9	6.9	6.9	T. 6.9
	Bottom		6.9	6.9	6.9		B. 6.9
Specific conductance (micromhos at 25°C)	Top	200	197	192	174	181	T. 189
	Bottom		197	192	171		B. 187
Dissolved oxygen	Top	--	8.4	8.4	9.9	10.4	T. 9.3
B. O. D. (5-day, 20°C)	Top	--	1.3	1.6	2.6	2.9	T. 2.1
Chloride (Cl)	Top	11	10	10	10	10	T. 10
	Bottom		10	10	9.0		B. 9.7
Suspended sediment	Top	Composite					T. 22

Table 8.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.--Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Torresdale Intake, Philadelphia, Pa. Date December 4, 1950 Sampling study No. 17
Weather Light Rain Water discharge at Trenton (cfs) 18,000

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:20 a.m.	11:15 a.m.	11:10 a.m.	11:05 a.m.	11:00 a.m.	
Sounding (ft)			32	33	18		
Temperature (°F)	Top	42	42	43	43	43	T. 43
	Bottom		43	43	43		B. 43
pH	Top	6.5	6.5	6.5	6.5	6.4	T. 6.5
	Bottom		6.4	6.5	6.5		B. 6.5
Specific conductance (micromhos at 25°C)	Top	108	105	99.4	100	101	T. 103
	Bottom		106	101	101		B. 103
Dissolved oxygen	Top	12.1	12.2	12.0	12.0	12.4	T. 12.1
B. O. D. (5-day, 20°C)	Top	3.7	4.0	2.3	2.2	2.5	T. 2.9
Chloride (Cl)	Top	4.0	4.0	2.0	4.0	4.0	T. 3.6
	Bottom		4.0	4.0	4.0		B. 4.0
Suspended sediment	Top	Composite					T. 26

Location Torresdale Intake, Philadelphia, Pa. Date January 3, 1951 Sampling study No. 18
Weather Clear Water discharge at Trenton (cfs) 8,210

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		9:53 a.m.	9:50 a.m.	9:46 a.m.	9:43 a.m.	9:40 a.m.	
Sounding (ft)			24	39	30		
Temperature (°F)	Top	34	35	35	35	35	T. 35
	Bottom		35	35	36		B. 35
pH	Top	6.7	6.6	7.0	6.7	6.9	T. 6.8
	Bottom		6.6	6.6	6.7		B. 6.6
Specific conductance (micromhos at 25°C)	Top	164	166	168	148	147	T. 159
	Bottom		166	162	149		B. 159
Dissolved oxygen	Top	12.0	12.0	12.5	12.0	12.0	T. 12.1
B. O. D. (5-day, 20°C)	Top	5.4	6.0	6.2	3.0	1.9	T. 4.5
Chloride (Cl)	Top	6.0	6.0	6.0	4.0	4.0	T. 5.2
	Bottom		6.0	6.0	4.0		B. 5.3
Suspended sediment	Top	Composite					T. 13

Location Torresdale Intake, Philadelphia, Pa. Date March 2, 1951 Sampling study No. 19
Weather Clear Water discharge at Trenton (cfs) 19,600

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:05 p.m.	12:10 p.m.	12:15 p.m.	12:20 p.m.	12:25 p.m.	
Sounding (ft)			36	28	20		
Temperature (°F)	Top	43	42	42	43	43	T. 43
	Bottom		42	43	43		B. 43
pH	Top	6.5	6.6	6.7	6.7	6.8	T. 6.7
	Bottom		6.7	6.8	6.8		B. 6.8
Specific conductance (micromhos at 25°C)	Top	109	105	101	103	97.5	T. 103
	Bottom		104	102	101		B. 102
Dissolved oxygen	Top	12.9	13.2	12.6	12.9	12.8	T. 12.9
B. O. D. (5-day, 20°C)	Top	3.6	3.9	3.0	3.3	3.3	T. 3.4
Chloride (Cl)	Top	4.0	4.0	4.0	4.0	3.0	T. 3.8
	Bottom		4.0	4.0	4.0		B. 4.0
Suspended sediment	Top	Composite					T. 14

Location Torresdale Intake, Philadelphia, Pa. Date April 2, 1951 Sampling study No. 20
Weather Rain Water discharge at Trenton (cfs) 71,500

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:13 a.m.	11:15 a.m.	11:17 a.m.	11:19 a.m.	11:21 a.m.	
Sounding (ft)			42	27	22		
Temperature (°F)	Top	45	45	45	45	46	T. 45
	Bottom		45	45	45		B. 45
pH	Top	6.7	6.8	6.9	6.9	6.6	T. 6.8
	Bottom		6.7	6.7	6.7		B. 6.7
Specific conductance (micromhos at 25°C)	Top	59.0	59.6	61.8	57.7	62.6	T. 60.1
	Bottom		57.0	57.5	57.1		B. 57.2
Dissolved oxygen	Top	11.0	11.5	14.0	12.0	10.8	T. 11.9
B. O. D. (5-day, 20°C)	Top	1.4	1.5	4.5	2.3	1.8	T. 2.3
Chloride (Cl)	Top	3.0	3.0	3.0	3.0	3.0	T. 3.0
	Bottom		3.0	3.0	3.0		B. 3.0
Suspended sediment	Top	Composite					T. 91

Table 8.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.--Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Torresdale Intake, Philadelphia, Pa. Date May 1, 1951 Sampling study No. 21
Weather Clear Water discharge at Trenton (cfs) 13,000

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		9:40 a.m.	9:38 a.m.	9:36 a.m.	9:33 a.m.	9:30 a.m.	
Sounding (ft)			33	37	18		
Temperature (°F)	Top	61	61	61	61	61	T. 61
	Bottom		61	61	61		B. 61
pH	Top	7.0	7.0	7.1	7.1	7.1	T. 7.1
	Bottom		7.0	7.0	7.1		B. 7.0
Specific conductance (micromhos at 25°C)	Top	119	115	119	109	109	T. 114
	Bottom		115	118	109		B. 114
Dissolved oxygen	Top	8.7	8.7	8.3	8.1	7.0	T. 8.2
B. O. D. (5-day, 20°C)	Top	3.0	2.7	2.5	1.1	.0	T. 1.9
Chloride (Cl)	Top	6.0	6.0	6.0	6.0	6.0	T. 6.0
	Bottom		6.0	6.0	6.0		B. 6.0
Suspended sediment	Top	Composite					T. 31

Location Torresdale Intake, Philadelphia, Pa. Date June 7, 1951 Sampling study No. 22
Weather Clear Water discharge at Trenton (cfs) 8,070

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:06 p.m.	12:08 p.m.	12:10 p.m.	12:15 p.m.	12:17 p.m.	
Sounding (ft)			30	28	9		
Temperature (°F)	Top	74	74	74	74	74	T. 74
	Bottom		74	74	74		B. 74
pH	Top	6.9	7.0	6.9	7.0	6.8	T. 6.9
	Bottom		7.0	6.8	6.9		B. 6.9
Specific conductance (micromhos at 25°C)	Top	133	133	130	126	118	T. 128
	Bottom		133	127	123		B. 128
Dissolved oxygen	Top	6.5	6.5	6.8	6.8	6.7	T. 6.7
B. O. D. (5-day, 20°C)	Top	2.3	2.5	2.9	1.8	2.3	T. 2.4
Chloride (Cl)	Top	6.0	5.0	6.0	6.0	5.0	T. 5.6
	Bottom		6.0	5.9	6.0		B. 5.7
Suspended sediment	Top	Composite					T. 20

Location Torresdale Intake, Philadelphia, Pa. Date July 5, 1951 Sampling study No. 23
Weather Cloudy Water discharge at Trenton (cfs) 9,190

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:15 a.m.	10:17 a.m.	10:21 a.m.	10:25 a.m.	10:27 a.m.	
Sounding (ft)			32	27	8		
Temperature (°F)	Top	77	76	76	76	77	T. 76
	Bottom		77	76	76		B. 76
pH	Top	7.0	7.1	7.1	7.0	6.9	T. 7.0
	Bottom		7.2	7.0	7.1		B. 7.1
Specific conductance (micromhos at 25°C)	Top	135	153	152	154	132	T. 145
	Bottom		150	151	142		B. 148
Dissolved oxygen	Top	5.5	5.4	5.4	5.2	5.4	T. 5.4
B. O. D. (5-day, 20°C)	Top	1.0	.9	6.6	1.5	1.6	T. 2.3
Chloride (Cl)	Top	6.0	6.0	6.0	6.0	6.0	T. 6.0
	Bottom		6.0	6.0	6.0		B. 6.0
Suspended sediment	Top	Composite					T. 18

Location Torresdale Intake, Philadelphia, Pa. Date August 1, 1951 Sampling study No. 24
Weather Cloudy Water discharge at Trenton (cfs) 12,400

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:00 n.	12:02 p.m.	12:04 p.m.	12:06 p.m.	12:08 p.m.	
Sounding (ft)			35	30	17		
Temperature (°F)	Top	76	76	76	76	76	T. 76
	Bottom		76	76	76		B. 76
pH	Top	6.8	6.9	7.0	7.0	6.9	T. 6.9
	Bottom		6.9	6.9	7.0		B. 6.9
Specific conductance (micromhos at 25°C)	Top	164	166	158	162	157	T. 161
	Bottom		162	160	159		B. 160
Dissolved oxygen	Top	5.7	6.1	6.4	6.0	6.1	T. 6.1
B. O. D. (5-day, 20°C)	Top	4.1	2.7	2.8	.9	3.1	T. 2.7
Chloride (Cl)	Top	4.0	4.0	4.0	4.0	4.0	T. 4.0
	Bottom		4.0	4.0	4.0		B. 4.0
Suspended sediment	Top	Composite					T. 35

Table 8. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Torresdale Intake, Philadelphia, Pa. Date September 6, 1951 Sampling study No. 25
Weather Rain Water discharge at Trenton (cfs) 3,810

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:20 p.m.	12:22 p.m.	12:24 p.m.	12:26 p.m.	12:28 p.m.	
Sounding (ft)			29	38	15		
Temperature (°F)	Top	75	75	75	75	75	T. 75
	Bottom		75	75	75		B. 75
pH	Top	7.0	7.1	7.1	7.0	6.9	T. 7.0
	Bottom		7.1	7.1	7.0		B. 7.1
Specific conductance (micromhos at 25°C)	Top	202	202	202	196	185	T. 197
	Bottom		202	199	195		B. 199
Dissolved oxygen	Top	5.6	5.5	5.3	5.4	5.6	T. 5.5
B. O. D. (5-day, 20°C)	Top	1.8	1.9	1.9	1.9	1.7	T. 1.8
Chloride (Cl)	Top	6.0	6.0	6.0	5.0	6.0	T. 5.8
	Bottom		7.0	7.0	6.0		B. 6.7
Suspended sediment	Top	Composite					T. 11

Location Torresdale Intake, Philadelphia, Pa. Date October 2, 1951 Sampling study No. 26
Weather Clear Water discharge at Trenton (cfs) 2,990

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		1:19 p.m.	1:20 p.m.	1:23 p.m.	1:26 p.m.	1:28 p.m.	
Sounding (ft)			40	35	15		
Temperature (°F)	Top	71	71	70	70	70	T. 70
	Bottom		70	70	70		B. 70
pH	Top	6.5	6.6	6.7	6.6	6.6	T. 6.6
	Bottom		6.5	7.3	6.5		B. 6.8
Specific conductance (micromhos at 25°C)	Top	235	214	208	205	215	T. 215
	Bottom		210	207	205		B. 207
Dissolved oxygen	Top	3.6	4.4	4.7	5.5	6.1	T. 4.9
B. O. D. (5-day, 20°C)	Top	8.1	3.9	4.2	2.7	2.6	T. 4.3
Chloride (Cl)	Top	11	10	10	9.0	10	T. 10
	Bottom		10	9.0	9.0		B. 9.3
Suspended sediment	Top	Composite					T. 35

Location Torresdale Intake, Philadelphia, Pa. Date November 7, 1951 Sampling study No. 27
Weather Cloudy Water discharge at Trenton (cfs) 37,700

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		1:45 p.m.	1:47 p.m.	1:49 p.m.	1:52 p.m.	1:55 p.m.	
Sounding (ft)			32	45	16		
Temperature (°F)	Top	46	45	46	46	46	T. 46
	Bottom		46	45	45		B. 45
pH	Top	6.7	6.6	6.4	6.5	6.6	T. 6.6
	Bottom		6.5	6.6	6.4		B. 6.5
Specific conductance (micromhos at 25°C)	Top	94.2	94.0	94.8	95.0	105	T. 96.6
	Bottom		95.8	94.3	99.5		B. 96.5
Dissolved oxygen	Top	10.8	10.5	11.1	11.1	10.0	T. 10.7
B. O. D. (5-day, 20°C)	Top	2.9	1.2	1.8	2.2	.8	T. 1.8
Chloride (Cl)	Top	3.0	3.0	3.0	3.0	4.0	T. 3.2
	Bottom		3.0	3.0	3.0		B. 3.0
Suspended sediment	Top	Composite					T. 41

Location Torresdale Intake, Philadelphia, Pa. Date December 5, 1951 Sampling study No. 28
Weather Rain Water discharge at Trenton (cfs) 12,500

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		2:11 p.m.	2:14 p.m.	2:16 p.m.	2:18 p.m.	2:20 p.m.	
Sounding (ft)			30	31	37		
Temperature (°F)	Top	43	41	41	42	42	T. 42
	Bottom		44	42	42		B. 43
pH	Top	6.9	7.2	6.9	6.9	6.8	T. 6.9
	Bottom		6.9	6.9	6.9		B. 6.9
Specific conductance (micromhos at 25°C)	Top	132	133	133	136	124	T. 132
	Bottom		135	134	132		B. 134
Dissolved oxygen	Top	12.2	12.2	12.4	12.2	12.1	T. 12.2
B. O. D. (5-day, 20°C)	Top	3.6	3.1	3.6	3.4	3.8	T. 3.5
Chloride (Cl)	Top	5.0	5.0	4.0	6.0	6.0	T. 5.2
	Bottom		6.0	5.0	4.0		B. 5.0
Suspended sediment	Top	Composite					T. 14

Table 8. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Torresdale Intake, Philadelphia, Pa. Date January 3, 1952 Sampling study No. 29
Weather Clear Water discharge at Trenton (cfs) 30,500

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:30 a.m.	10:35 a.m.	10:37 a.m.	10:40 a.m.	10:42 a.m.	
Sounding (ft)			31	27	21		
Temperature (°F)	Top	38	39	39	39	39	T. 39
	Bottom		39	38	38		B. 38
pH	Top	7.1	7.2	7.2	7.1	6.9	T. 7.1
	Bottom		7.1	7.2	7.1		B. 7.1
Specific conductance (micromhos at 25°C)	Top	136	133	127	122	117	T. 127
	Bottom		132	128	123		B. 128
Dissolved oxygen	Top	11.2	11.4	10.5	10.6	10.8	T. 10.9
B. O. D. (5-day, 20°C)	Top	1.7	3.5	.9	1.0	1.7	T. 1.8
Chloride (Cl)	Top	4.0	5.0	4.0	4.0	4.0	T. 4.2
	Bottom		4.0	4.0	4.0		B. 4.0
Suspended sediment	Top	Composite					T. 19

Location Torresdale Intake, Philadelphia, Pa. Date February 5, 1952 Sampling study No. 30
Weather Clear Water discharge at Trenton (cfs) 39,800

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:55 a.m.	11:00 a.m.	11:02 a.m.	11:05 a.m.	11:07 a.m.	
Sounding (ft)			35	30	17		
Temperature (°F)	Top	41	40	40	41	41	T. 41
	Bottom		41	41	41		B. 41
pH	Top	7.0	6.5	6.6	6.6	6.5	T. 6.6
	Bottom		6.6	6.6	6.6		B. 6.6
Specific conductance (micromhos at 25°C)	Top	113	114	111	112	117	T. 113
	Bottom		114	112	111		B. 112
Dissolved oxygen	Top	12.4	12.4	12.4	12.6	12.4	T. 12.4
B. O. D. (5-day, 20°C)	Top	4.0	3.5	3.1	3.6	3.5	T. 3.5
Chloride (Cl)	Top	3.0	2.0	2.0	3.0	5.0	T. 3.0
	Bottom		3.0	2.0	3.0		B. 2.7
Suspended sediment	Top	Composite					T. 49

Location Torresdale Intake, Philadelphia, Pa. Date March 5, 1952 Sampling study No. 31
Weather Overcast Water discharge at Trenton (cfs) 9,730

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:15 a.m.	11:18 a.m.	11:21 a.m.	11:25 a.m.	11:28 a.m.	
Sounding (ft)			42	34	16		
Temperature (°F)	Top	39	40	39	40	40	T. 40
	Bottom		39	39	39		B. 39
pH	Top	6.9	6.7	6.7	6.5	6.7	T. 6.7
	Bottom		6.7	6.7	6.7		B. 6.7
Specific conductance (micromhos at 25°C)	Top	157	157	153	154	152	T. 155
	Bottom		162	157	154		B. 158
Dissolved oxygen	Top	10.0	11.0	10.7	11.2	11.0	T. 10.8
B. O. D. (5-day, 20°C)	Top	1.7	3.0	2.2	2.6	2.0	T. 2.3
Chloride (Cl)	Top	6.0	6.0	6.0	6.0	6.0	T. 6.0
	Bottom		6.0	6.0	4.0		B. 5.3
Suspended sediment	Top	Composite					T. 14

Location Torresdale Intake, Philadelphia, Pa. Date April 2, 1952 Sampling study No. 32
Weather Clear Water discharge at Trenton (cfs) 22,700

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:15 a.m.	11:18 a.m.	11:21 a.m.	11:24 a.m.	11:27 a.m.	
Sounding (ft)			34	38	25		
Temperature (°F)	Top	49	49	49	49	50	T. 49
	Bottom		49	49	50		B. 49
pH	Top	6.7	6.6	6.7	6.7	6.8	T. 6.7
	Bottom		7.1	6.7	6.7		B. 6.8
Specific conductance (micromhos at 25°C)	Top	99.2	99.2	96.5	94.5	94.5	T. 96.8
	Bottom		103	97.0	95.7		B. 98.6
Dissolved oxygen	Top	10.5	9.9	9.6	9.2	9.8	T. 9.8
B. O. D. (5-day, 20°C)	Top	.9	.9	.8	.3	1.0	T. .8
Chloride (Cl)	Top	3.0	3.0	3.0	3.0	3.0	T. 3.0
	Bottom		3.0	2.0	3.0		B. 2.7
Suspended sediment	Top	Composite					T. 10

Table 8. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Torresdale Intake, Philadelphia, Pa. Date May 5, 1952 Sampling study No. 33
Weather Overcast Water discharge at Trenton (cfs) 16,700

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:12 a.m.	10:15 a.m.	10:18 a.m.	10:20 a.m.	10:22 a.m.	
Sounding (ft)			33	40	18		
Temperature (°F)	Top	58	58	57	57	58	T. 58
	Bottom		58	58	58		B. 58
pH	Top	6.7	6.7	6.8	6.7	6.7	T. 6.7
	Bottom		7.4	6.8	6.8		B. 7.0
Specific conductance (micromhos at 25°C)	Top	124	120	116	111	106	T. 115
	Bottom		120	115	111		B. 115
Dissolved oxygen	Top	8.6	8.8	8.8	8.8	9.0	T. 8.8
B. O. D. (5-day, 20°C)	Top	1.0	1.0	.8	2.0	2.2	T. 1.4
Chloride (Cl)	Top	3.0	4.0	3.0	2.0	4.0	T. 3.2
	Bottom		3.0	3.0	2.0		B. 2.7
Suspended sediment	Top	Composite					T. 18

Location Torresdale Intake, Philadelphia, Pa. Date June 4, 1952 Sampling study No. 34
Weather Cloudy Water discharge at Trenton (cfs) 28,600

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		9:52 a.m.	9:54 a.m.	9:56 a.m.	9:58 a.m.	10:00 a.m.	
Sounding (ft)			35	37	15		
Temperature (°F)	Top	67	66	66	67	68	T. 67
	Bottom		69	69	68		B. 69
pH	Top	6.8	6.8	6.7	6.8	6.6	T. 6.7
	Bottom		6.6	6.7	6.7		B. 6.7
Specific conductance (micromhos at 25°C)	Top	97.5	92.0	90.4	89.7	89.1	T. 91.7
	Bottom		94.8	90.2	89.1		B. 91.4
Dissolved oxygen	Top	7.7	7.7	7.9	7.8	7.5	T. 7.7
B. O. D. (5-day, 20°C)	Top	2.2	1.6	1.4	1.3	1.4	T. 1.6
Chloride (Cl)	Top	2.0	2.0	2.0	2.0	2.0	T. 2.0
	Bottom		2.0	2.0	2.0		B. 2.0
Suspended sediment	Top	Composite					T. 16

Location Torresdale Intake, Philadelphia, Pa. Date July 7, 1952 Sampling study No. 35
Weather Light Clouds Water discharge at Trenton (cfs) 3,370

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:35 a.m.	10:33 a.m.	10:31 a.m.	10:29 a.m.	10:27 a.m.	
Sounding (ft)			30	35	9		
Temperature (°F)	Top	80	80	81	80	81	T. 80
	Bottom		81	81	81		B. 81
pH	Top	6.8	7.2	7.1	6.9	6.9	T. 7.0
	Bottom		7.4	6.9	6.8		B. 7.0
Specific conductance (micromhos at 25°C)	Top	179	185	178	170	172	T. 177
	Bottom		177	180	170		B. 176
Dissolved oxygen	Top	4.9	4.8	4.8	4.5	4.4	T. 4.7
B. O. D. (5-day, 20°C)	Top	.7	5.2	2.2	2.6	1.3	T. 2.4
Chloride (Cl)	Top	6.0	6.0	6.0	6.0	6.0	T. 6.0
	Bottom		7.0	6.0	6.0		B. 6.3
Suspended sediment	Top	Composite					T. 23

Location Torresdale Intake, Philadelphia, Pa. Date August 6, 1952 Sampling study No. 36
Weather Cloudy Water discharge at Trenton (cfs) 4,020

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:15 p.m.	12:17 p.m.	12:20 p.m.	12:22 p.m.	12:25 p.m.	
Sounding (ft)			34	40	18		
Temperature (°F)	Top	81	80	80	80	80	T. 80
	Bottom		80	80	80		B. 80
pH	Top	6.6	6.7	6.7	6.7	6.8	T. 6.7
	Bottom		6.7	6.7	6.8		B. 6.7
Specific conductance (micromhos at 25°C)	Top	178	168	164	159	157	T. 165
	Bottom		169	163	160		B. 164
Dissolved oxygen	Top	5.1	5.1	5.2	6.5	5.7	T. 5.5
B. O. D. (5-day, 20°C)	Top	11.6	8.0	6.1	6.2	5.2	T. 7.4
Chloride (Cl)	Top	8.0	8.0	7.0	7.0	7.0	T. 7.4
	Bottom		7.0	7.0	7.0		B. 7.0
Suspended sediment	Top	Composite					T. 39

Table 8.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.--Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Torresdale Intake, Philadelphia, Pa. Date September 3, 1952 Sampling study No. 37
Weather Clear Water discharge at Trenton (cfs) 32,000

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:20 a.m.	10:22 a.m.	10:25 a.m.	10:27 a.m.	10:29 a.m.	
Sounding (ft)			30	35	18		
Temperature (°F)	Top	74	74	74	74	75	T. 74
	Bottom		75	75	75		B. 75
pH	Top	6.3	6.3	6.3	6.2	6.3	T. 6.3
	Bottom		6.3	6.3	6.3		B. 6.3
Specific conductance (micromhos at 25°C)	Top	162	160	160	148	143	T. 155
	Bottom		161	160	153		B. 158
Dissolved oxygen	Top	6.1	6.9	6.8	6.3	6.2	T. 6.5
B. O. D. (5-day, 20°C)	Top	2.2	2.4	2.3	2.1	2.0	T. 2.2
Chloride (Cl)	Top	7.0	5.0	5.5	5.5	6.0	T. 5.8
	Bottom		5.0	5.0	6.0		B. 5.3
Suspended sediment	Top	Composite					T. 18

Location Torresdale Intake, Philadelphia, Pa. Date October 6, 1952 Sampling study No. 38
Weather Clear Water discharge at Trenton (cfs) 4,800

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:45 a.m.	11:48 a.m.	11:51 a.m.	11:54 a.m.	11:57 a.m.	
Sounding (ft)			27	34	20		
Temperature (°F)	Top	67	66	66	67	66	T. 66
	Bottom		67	67	66		B. 67
pH	Top	6.4	6.4	6.4	6.4	6.4	T. 6.4
	Bottom		6.5	6.4	6.4		B. 6.4
Specific conductance (micromhos at 25°C)	Top	212	201	199	184	170	T. 193
	Bottom		198	201	185		B. 195
Dissolved oxygen	Top	7.4	7.6	8.1	8.0	7.9	T. 7.8
B. O. D. (5-day, 20°C)	Top	1.5	1.9	2.0	2.2	2.5	T. 2.0
Chloride (Cl)	Top	10	8.5	8.5	8.5	8.5	T. 8.8
	Bottom		8.0	8.5	8.5		B. 8.3
Suspended sediment	Top	Composite					T. 1

Location Torresdale Intake, Philadelphia, Pa. Date November 6, 1952 Sampling study No. 39
Weather Clear Water discharge at Trenton (cfs) 3,130

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:15 a.m.	11:18 a.m.	11:21 a.m.	11:24 a.m.	11:27 a.m.	
Sounding (ft)			40	33	15		
Temperature (°F)	Top	50	49	49	49	49	T. 49
	Bottom		49	51	50		B. 50
pH	Top	6.7	6.4	6.5	6.5	6.5	T. 6.5
	Bottom		6.5	6.4	6.5		B. 6.5
Specific conductance (micromhos at 25°C)	Top	230	233	229	216	209	T. 224
	Bottom		229	226	215		B. 223
Dissolved oxygen	Top	8.8	9.3	9.6	9.7	9.5	T. 9.4
B. O. D. (5-day, 20°C)	Top	2.1	2.6	2.4	2.7	2.6	T. 2.5
Chloride (Cl)	Top	10	11	11	11	11	T. 11
	Bottom		11	11	11		B. 11
Suspended sediment	Top	Composite					T. 14

Location Torresdale Intake, Philadelphia, Pa. Date December 4, 1952 Sampling study No. 40
Weather Clear Water discharge at Trenton (cfs) 10,300

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		1:53 p.m.	1:50 p.m.	1:47 p.m.	1:44 p.m.	1:41 p.m.	
Sounding (ft)			35	40	24		
Temperature (°F)	Top	41	41	41	41	41	T. 41
	Bottom		41	41	42		B. 41
pH	Top	6.4	6.4	6.4	6.4	6.4	T. 6.4
	Bottom		6.5	6.4	6.5		B. 6.5
Specific conductance (micromhos at 25°C)	Top	134	122	119	117	110	T. 122
	Bottom		121	119	120		B. 120
Dissolved oxygen	Top	10.8	11.7	11.9	11.9	11.5	T. 11.6
B. O. D. (5-day, 20°C)	Top	2.7	2.1	3.3	3.2	2.5	T. 2.8
Chloride (Cl)	Top	5.0	5.0	4.5	5.0	5.0	T. 4.9
	Bottom		5.0	5.0	5.0		B. 5.0
Suspended sediment	Top	Composite					T. 35

Table 9.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Lehigh Avenue, Philadelphia, Pa. Date August 2, 1949 Sampling study No. 1
Weather Cloudy Water discharge at Trenton (cfs) 2,940

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		--	--	8:30 a.m.	--	--	
Sounding (ft)			34	34	28		
Temperature (°F)	Top	84	84	83	82	84	T. 83
	Bottom		83	83	83		B. 83
pH	Top	6.1	6.1	6.1	6.1	6.0	T. 6.1
	Bottom		6.0	6.1	6.0		B. 6.0
Specific conductance (micromhos at 25°C)	Top	264	271	277	274	266	T. 270
	Bottom		281	275	273		B. 276
Dissolved oxygen	Top	.3	.1	.4	.0	.0	T. .2
B. O. D. (5-day, 20°C)	Top	19.0	17.0	16.0	15.0	18.0	T. 17.0
Chloride (Cl)	Top	16	16	17	17	16	T. 16
	Bottom		17	16	16		B. 16
Suspended sediment	Top	Composite					T. --

Location Lehigh Avenue, Philadelphia, Pa. Date September 6, 1949 Sampling study No. 2
Weather Cloudy Water discharge at Trenton (cfs) 5,310

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		--	--	12:45 p.m.	--	--	
Sounding (ft)			44	34	23		
Temperature (°F)	Top	77	78	78	78	78	T. 78
	Bottom		77	78	78		B. 78
pH	Top	6.6	6.5	6.6	6.5	6.6	T. 6.6
	Bottom		6.6	6.4	6.4		B. 6.5
Specific conductance (micromhos at 25°C)	Top	318	354	360	363	347	T. 348
	Bottom		357	365	357		B. 360
Dissolved oxygen	Top	.9	.4	.3	1.0	1.0	T. .7
B. O. D. (5-day, 20°C)	Top	6.4	6.3	5.0	4.0	2.0	T. 4.7
Chloride (Cl)	Top	24	34	33	33	30	T. 31
	Bottom		32	33	33		B. 33
Suspended sediment	Top	Composite					T. 22

Location Lehigh Avenue, Philadelphia, Pa. Date October 4, 1949 Sampling study No. 3
Weather Rain Water discharge at Trenton (cfs) 3,520

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		--	--	1:45 p.m.	--	--	
Sounding (ft)			45	42	38		
Temperature (°F)	Top	70	70	70	70	70	T. 70
	Bottom		69	69	69		B. 69
pH	Top	6.4	6.6	6.4	6.4	6.4	T. 6.4
	Bottom		6.4	6.6	6.6		B. 6.5
Specific conductance (micromhos at 25°C)	Top	366	416	417	391	361	T. 390
	Bottom		394	409	398		B. 400
Dissolved oxygen	Top	.2	.6	1.5	1.3	1.8	T. 1.1
B. O. D. (5-day, 20°C)	Top	1.5	1.0	1.9	.0	.4	T. 1.0
Chloride (Cl)	Top	38	50	50	44	37	T. 44
	Bottom		42	45	44		B. 44
Suspended sediment	Top	Composite					T. 17

Location Lehigh Avenue, Philadelphia, Pa. Date November 1, 1949 Sampling study No. 4
Weather Cloudy Water discharge at Trenton (cfs) 3,340

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		--	--	2:30 p.m.	--	--	
Sounding (ft)			44	44	20		
Temperature (°F)	Top	58	58	58	56	61	T. 58
	Bottom		58	58	56		B. 57
pH	Top	6.6	6.6	6.6	6.6	6.8	T. 6.6
	Bottom		6.6	6.6	6.7		B. 6.6
Specific conductance (micromhos at 25°C)	Top	402	406	407	366	359	T. 388
	Bottom		412	404	365		B. 394
Dissolved oxygen	Top	1.0	1.3	1.7	2.0	2.0	T. 1.6
B. O. D. (5-day, 20°C)	Top	10.0	9.0	9.1	8.4	9.0	T. 9.1
Chloride (Cl)	Top	48	49	48	41	38	T. 45
	Bottom		50	47	40		B. 46
Suspended sediment	Top	Composite					T. 15

Table 9. -- WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Lehigh Avenue, Philadelphia, Pa. Date December 1, 1949 Sampling study No. 5
Weather Clear Water discharge at Trenton (cfs) 4,970

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		--	--	2:00 p.m.	--	--	
Sounding (ft)			43	32	21		
Temperature (°F)	Top	45	43	44	42	42	T. 43
	Bottom		44	44	41		B. 43
pH	Top	6.3	6.3	6.3	6.4	6.4	T. 6.3
	Bottom		6.3	6.3	6.3		B. 6.3
Specific conductance (micromhos at 25°C)	Top	227	203	206	204	202	T. 208
	Bottom		205	208	204		B. 206
Dissolved oxygen	Top	4.1	4.8	5.1	4.7	4.9	T. 4.7
B. O. D. (5-day, 20°C)	Top	4.1	1.5	.0	.0	.0	T. 1.1
Chloride (Cl)	Top	15	13	13	14	11	T. 13
	Bottom		14	14	13		B. 14
Suspended sediment	Top	Composite					T. 28

Location Lehigh Avenue, Philadelphia, Pa. Date January 3, 1950 Sampling study No. 6
Weather Light Rain Water discharge at Trenton (cfs) 11,100

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		1:45 p.m.	1:48 p.m.	1:52 p.m.	1:55 p.m.	1:58 p.m.	
Sounding (ft)			45	39	23		
Temperature (°F)	Top	--	--	--	--	--	T. --
	Bottom		--	--	--		B. --
pH	Top	6.2	6.5	6.5	6.5	6.6	T. 6.5
	Bottom		6.4	6.4	6.3		B. 6.4
Specific conductance (micromhos at 25°C)	Top	130	131	130	127	123	T. 128
	Bottom		131	128	128		B. 129
Dissolved oxygen	Top	9.0	9.0	8.2	8.4	8.6	T. 8.6
B. O. D. (5-day, 20°C)	Top	.5	.5	.0	.0	.0	T. .2
Chloride (Cl)	Top	7..	8.0	7.0	6.0	9.0	T. 7.4
	Bottom		8.0	7.0	8.0		B. 7.7
Suspended sediment	Top	Composite					T. 61

Location Lehigh Avenue, Philadelphia, Pa. Date February 2, 1950 Sampling study No. 7
Weather Cloudy Water discharge at Trenton (cfs) 13,200

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		9:55 a.m.	10:00 a.m.	10:02 a.m.	10:05 a.m.	10:10 a.m.	
Sounding (ft)			45	37	24		
Temperature (°F)	Top	43	41	41	40	40	T. 41
	Bottom		40	40	40		B. 40
pH	Top	6.5	6.8	6.8	6.8	6.9	T. 6.8
	Bottom		6.8	6.8	6.8		B. 6.8
Specific conductance (micromhos at 25°C)	Top	155	147	110	109	111	T. 126
	Bottom		114	109	109		B. 111
Dissolved oxygen	Top	8.4	10.2	11.2	10.6	10.5	T. 10.2
B. O. D. (5-day, 20°C)	Top	8.8	3.6	2.8	2.6	2.0	T. 4.0
Chloride (Cl)	Top	9.0	6.0	5.0	5.0	5.0	T. 6.0
	Bottom		5.0	5.0	5.0		B. 5.0
Suspended sediment	Top	Composite					T. 16

Location Lehigh Avenue, Philadelphia, Pa. Date March 6, 1950 Sampling study No. 8
Weather Clear Water discharge at Trenton (cfs) 7,080

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:05 a.m.	10:01 a.m.	9:58 a.m.	9:55 a.m.	9:50 a.m.	
Sounding (ft)			31	19	17		
Temperature (°F)	Top	35	34	35	35	36	T. 35
	Bottom		35	35	35		B. 35
pH	Top	7.2	7.0	6.9	7.1	6.9	T. 7.0
	Bottom		7.0	6.7	6.7		B. 6.8
Specific conductance (micromhos at 25°C)	Top	163	144	144	144	148	T. 149
	Bottom		144	146	148		B. 146
Dissolved oxygen	Top	10.5	12.9	10.3	10.7	11.8	T. 11.2
B. O. D. (5-day, 20°C)	Top	8.3	5.2	2.1	4.0	4.6	T. 4.8
Chloride (Cl)	Top	10	7.0	7.0	7.0	7.0	T. 7.6
	Bottom		7.0	7.0	7.0		B. 7.0
Suspended sediment	Top	Composite					T. 18

Table 9.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.--Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Lehigh Avenue, Philadelphia, Pa. Date April 4, 1950 Sampling study No. 9
Weather Clear Water discharge at Trenton (cfs) 36,600

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		1:46 p.m.	1:50 p.m.	1:54 p.m.	1:58 p.m.	2:00 p.m.	
Sounding (ft)			44	40	27		
Temperature (°F)	Top	48	47	47	47	48	T. 47
	Bottom		47	46	47		B. 47
pH	Top	6.6	6.8	6.9	6.9	6.9	T. 6.8
	Bottom		6.8	6.6	6.6		B. 6.7
Specific conductance (micromhos at 25°C)	Top	98.8	85.9	78.8	76.9	78.2	T. 83.7
	Bottom		83.7	88.5	79.6		B. 83.9
Dissolved oxygen	Top	10.0	10.2	11.0	10.5	10.7	T. 10.5
B. O. D. (5-day, 20°C)	Top	6.2	3.4	2.9	2.5	2.7	T. 3.5
Chloride (Cl)	Top	5.0	4.0	4.0	4.0	4.0	T. 4.2
	Bottom		4.0	3.0	4.0		B. 3.7
Suspended sediment	Top	Composite					T. 20

Location Lehigh Avenue, Philadelphia, Pa. Date May 1, 1950 Sampling study No. 10
Weather Rain Water discharge at Trenton (cfs) 12,300

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		9:45 a.m.	9:42 a.m.	9:38 a.m.	9:35 a.m.	9:30 a.m.	
Sounding (ft)			43	35	22		
Temperature (°F)	Top	52	52	52	52	52	T. 52
	Bottom		52	52	52		B. 52
pH	Top	6.7	6.8	6.9	6.9	6.9	T. 6.8
	Bottom		6.8	6.6	6.9		B. 6.8
Specific conductance (micromhos at 25°C)	Top	124	116	103	102	102	T. 109
	Bottom		107	107	103		B. 106
Dissolved oxygen	Top	7.1	8.1	9.1	9.3	9.4	T. 8.6
B. O. D. (5-day, 20°C)	Top	5.4	2.7	1.3	1.5	1.4	T. 2.5
Chloride (Cl)	Top	6.0	4.0	5.0	4.0	4.0	T. 4.6
	Bottom		5.0	5.0	4.0		B. 4.7
Suspended sediment	Top	Composite					T. 15

Location Lehigh Avenue, Philadelphia, Pa. Date June 6, 1950 Sampling study No. 11
Weather Cloudy Water discharge at Trenton (cfs) 18,900

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		9:19 a.m.	9:16 a.m.	9:13 a.m.	9:10 a.m.	9:07 a.m.	
Sounding (ft)			42	37	27		
Temperature (°F)	Top	68	68	68	67	67	T. 68
	Bottom		68	68	68		B. 68
pH	Top	6.4	6.5	6.5	7.2	6.6	T. 6.6
	Bottom		6.4	6.6	6.4		B. 6.5
Specific conductance (micromhos at 25°C)	Top	140	126	124	122	117	T. 126
	Bottom		135	126	123		B. 128
Dissolved oxygen	Top	2.3	3.1	3.6	4.3	4.8	T. 3.6
B. O. D. (5-day, 20°C)	Top	2.2	.0	.0	.0	.0	T. .4
Chloride (Cl)	Top	8.0	6.0	7.0	6.0	6.0	T. 6.6
	Bottom		7.0	6.0	6.0		B. 6.3
Suspended sediment	Top	Composite					T. 14

Location Lehigh Avenue, Philadelphia, Pa. Date July 6, 1950 Sampling study No. 12
Weather Light Rain Water discharge at Trenton (cfs) 6,130

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:35 p.m.	12:40 p.m.	12:45 p.m.	12:48 p.m.	12:50 p.m.	
Sounding (ft)			41	32	18		
Temperature (°F)	Top	78	78	78	78	77	T. 78
	Bottom		78	78	78		B. 78
pH	Top	6.4	6.6	6.6	6.6	6.5	T. 6.5
	Bottom		6.4	6.5	6.6		B. 6.5
Specific conductance (micromhos at 25°C)	Top	181	153	144	149	146	T. 155
	Bottom		149	142	153		B. 148
Dissolved oxygen	Top	.9	1.2	2.2	2.2	2.3	T. 1.8
B. O. D. (5-day, 20°C)	Top	6.2	2.9	2.5	2.5	3.6	T. 3.5
Chloride (Cl)	Top	10	8.0	8.0	8.0	8.0	T. 8.4
	Bottom		8.0	7.0	7.0		B. 7.3
Suspended sediment	Top	Composite					T. 22

Table 9. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Lehigh Avenue, Philadelphia, Pa. Date August 7, 1950 Sampling study No. 13
Weather Cloudy Water discharge at Trenton (cfs) 5,090

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		9:06 a.m.	9:02 a.m.	9:05 a.m.	9:00 a.m.	8:55 a.m.	
Sounding (ft)			41	35	21		
Temperature (°F)	Top	79	79	79	79	79	T. 79
	Bottom		79	79	79		B. 79
pH	Top	6.4	6.3	6.3	6.3	6.3	T. 6.3
	Bottom		6.4	6.4	6.5		B. 6.4
Specific conductance (micromhos at 25°C)	Top	225	225	217	227	231	T. 225
	Bottom		229	217	227		B. 224
Dissolved oxygen	Top	.7	.2	.8	.9	1.0	T. .8
B. O. D. (5-day, 20°C)	Top	2.3	5.4	4.5	3.7	5.0	T. 4.2
Chloride (Cl)	Top	11	11	11	10	11	T. 11
	Bottom		11	11	10		B. 11
Suspended sediment	Top	Composite					T. 33

Location Lehigh Avenue, Philadelphia, Pa. Date September 6, 1950 Sampling study No. 14
Weather Clear Water discharge at Trenton (cfs) 4,860

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		2:45 p.m.	2:43 p.m.	2:39 p.m.	2:37 p.m.	2:34 p.m.	
Sounding (ft)			42	35	18		
Temperature (°F)	Top	76	76	76	76	76	T. 76
	Bottom		76	76	76		B. 76
pH	Top	6.7	6.7	6.7	6.7	6.7	T. 6.7
	Bottom		6.6	6.6	6.6		B. 6.6
Specific conductance (micromhos at 25°C)	Top	202	185	180	185	186	T. 188
	Bottom		185	181	185		B. 184
Dissolved oxygen	Top	1.4	1.4	2.0	2.0	2.2	T. 1.8
B. O. D. (5-day, 20°C)	Top	5.7	1.2	7.8	7.8	--	T. 5.6
Chloride (Cl)	Top	10	9.0	8.0	9.0	9.0	T. 9.0
	Bottom		8.0	9.0	9.0		B. 8.7
Suspended sediment	Top	Composite					T. 10

Location Lehigh Avenue, Philadelphia, Pa. Date October 3, 1950 Sampling study No. 15
Weather Misty Water discharge at Trenton (cfs) 2,840

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		3:05 p.m.	3:10 p.m.	3:15 p.m.	3:20 p.m.	3:25 p.m.	
Sounding (ft)			34	37	23		
Temperature (°F)	Top	69	68	68	68	68	T. 68
	Bottom		69	68	68		B. 68
pH	Top	6.3	6.4	6.3	6.5	6.4	T. 6.4
	Bottom		6.2	6.4	6.3		B. 6.3
Specific conductance (micromhos at 25°C)	Top	240	234	227	245	231	T. 235
	Bottom		226	219	226		B. 224
Dissolved oxygen	Top	.6	.6	.8	.7	.6	T. .7
B. O. D. (5-day, 20°C)	Top	5.7	4.5	3.5	2.8	3.3	T. 4.0
Chloride (Cl)	Top	14	14	12	16	14	T. 14
	Bottom		14	12	14		B. 13
Suspended sediment	Top	Composite					T. 21

Location Lehigh Avenue, Philadelphia, Pa. Date November 2, 1950 Sampling study No. 16
Weather Cloudy Water discharge at Trenton (cfs) 2,550

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		2:44 p.m.	2:42 p.m.	2:39 p.m.	2:36 p.m.	2:33 p.m.	
Sounding (ft)			40	34	24		
Temperature (°F)	Top	64	65	65	64	64	T. 64
	Bottom		65	65	65		B. 65
pH	Top	6.6	7.0	6.6	6.4	6.6	T. 6.6
	Bottom		6.4	6.4	6.4		B. 6.4
Specific conductance (micromhos at 25°C)	Top	266	306	266	251	262	T. 270
	Bottom		247	249	251		B. 249
Dissolved oxygen	Top	.5	.5	1.1	1.2	1.4	T. .9
B. O. D. (5-day, 20°C)	Top	2.9	8.6	2.3	3.3	2.4	T. 3.9
Chloride (Cl)	Top	16	24	16	14	16	T. 17
	Bottom		14	14	14		B. 14
Suspended sediment	Top	Composite					T. 23

Table 9. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Lehigh Avenue, Philadelphia, Pa. Date December 4, 1950 Sampling study No. 17
Weather Light Rain Water discharge at Trenton (cfs) 16,000

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		2:23 p.m.	2:20 p.m.	2:17 p.m.	2:15 p.m.	2:10 p.m.	
Sounding (ft)			37	33	23		
Temperature (°F)	Top	42	42	42	42	43	T. 42
	Bottom		42	42	43		B. 42
pH	Top	6.2	6.4	6.5	6.5	6.4	T. 6.4
	Bottom		6.3	6.4	6.5		B. 6.3
Specific conductance (micromhos at 25°C)	Top	124	103	104	103	104	T. 108
	Bottom		108	106	105		B. 106
Dissolved oxygen	Top	12.7	12.7	12.7	12.7	12.7	T. 12.7
B. O. D. (5-day, 20°C)	Top	11.7	5.0	3.7	4.1	5.3	T. 6.0
Chloride (Cl)	Top	6.0	4.0	4.0	4.0	4.0	T. 4.4
	Bottom		4.0	4.0	4.0		B. 4.0
Suspended sediment	Top	Composite					T. 41

Location Lehigh Avenue, Philadelphia, Pa Date January 3, 1951 Sampling study No. 18
Weather Clear Water discharge at Trenton (cfs) 8,210

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		2:37 p.m.	2:34 p.m.	2:31 p.m.	2:28 p.m.	2:25 p.m.	
Sounding (ft)			41	33	29		
Temperature (°F)	Top	37	35	35	35	36	T. 36
	Bottom		36	36	36		B. 36
pH	Top	6.6	6.6	6.7	6.7	6.7	T. 6.7
	Bottom		6.7	6.6	6.6		B. 6.6
Specific conductance (micromhos at 25°C)	Top	164	156	153	148	150	T. 154
	Bottom		159	154	150		B. 154
Dissolved oxygen	Top	11.1	11.2	10.9	11.3	10.9	T. 11.1
B. O. D. (5-day, 20°C)	Top	5.3	5.2	3.7	3.1	2.7	T. 4.0
Chloride (Cl)	Top	6.0	4.0	4.0	4.0	4.0	T. 4.4
	Bottom		6.0	6.0	4.0		B. 5.3
Suspended sediment	Top	Composite					T. 24

Location Lehigh Avenue, Philadelphia, Pa. Date March 2, 1951 Sampling study No. 19
Weather Clear Water discharge at Trenton (cfs) 19,600

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:55 p.m.	12:58 p.m.	1:00 p.m.	1:03 p.m.	1:06 p.m.	
Sounding (ft)			44	36	23		
Temperature (°F)	Top	45	44	43	43	43	T. 44
	Bottom		43	43	43		B. 43
pH	Top	6.5	6.6	6.8	6.8	6.8	T. 6.7
	Bottom		6.7	6.8	6.8		B. 6.8
Specific conductance (micromhos at 25°C)	Top	146	129	106	104	104	T. 118
	Bottom		110	106	104		B. 107
Dissolved oxygen	Top	10.5	11.2	13.1	13.2	13.4	T. 12.3
B. O. D. (5-day, 20°C)	Top	9.7	5.9	5.2	4.3	4.7	T. 6.0
Chloride (Cl)	Top	7.0	6.0	4.0	4.0	4.0	T. 5.0
	Bottom		5.0	4.0	4.0		B. 4.3
Suspended sediment	Top	Composite					T. 18

Location Lehigh Avenue, Philadelphia, Pa. Date April 2, 1951 Sampling study No. 20
Weather Rain Water discharge at Trenton (cfs) 71,500

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:56 a.m.	11:59 a.m.	12:01 p.m.	12:03 p.m.	12:05 p.m.	
Sounding (ft)			48	39	26		
Temperature (°F)	Top	46	46	46	46	46	T. 46
	Bottom		46	46	46		B. 46
pH	Top	6.8	6.7	6.8	6.8	6.8	T. 6.8
	Bottom		6.7	6.7	6.7		B. 6.7
Specific conductance (micromhos at 25°C)	Top	60.0	59.5	57.7	57.3	56.5	T. 58.2
	Bottom		57.9	56.1	56.6		B. 56.9
Dissolved oxygen	Top	10.6	11.0	11.2	11.1	11.3	T. 11.0
B. O. D. (5-day, 20°C)	Top	2.1	2.3	2.4	2.6	2.3	T. 2.3
Chloride (Cl)	Top	3.0	3.0	3.0	3.0	3.0	T. 3.0
	Bottom		3.0	3.0	3.0		B. 3.0
Suspended sediment	Top	Composite					T. 101

Table 9. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Lehigh Avenue, Philadelphia, Pa. Date May 1, 1951 Sampling study No. 21
Weather Clear Water discharge at Trenton (cfs) 13,000

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		8:50 a.m.	8:52 a.m.	8:54 a.m.	8:56 a.m.	8:59 a.m.	
Sounding (ft)			45	39	26		
Temperature (°F)	Top	62	61	61	61	61	T. 61
	Bottom		61	61	61		B. 61
pH	Top	6.8	6.8	6.9	6.9	6.8	T. 6.8
	Bottom		6.8	6.9	6.9		B. 6.9
Specific conductance (micromhos at 25°C)	Top	134	130	121	119	122	T. 125
	Bottom		129	123	120		B. 124
Dissolved oxygen	Top	5.0	5.4	6.9	6.9	6.5	T. 6.2
B. O. D. (5-day, 20°C)	Top	3.6	3.3	2.3	2.2	2.3	T. 2.7
Chloride (Cl)	Top	7.0	7.0	6.0	6.0	6.0	T. 7.4
	Bottom		6.0	6.0	6.0		B. 6.0
Suspended sediment	Top	Composite					T. 24

Location Lehigh Avenue, Philadelphia, Pa. Date June 7, 1951 Sampling study No. 22
Weather Cloudy Water discharge at Trenton (cfs) 6,670

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		1:25 p.m.	1:27 p.m.	1:29 p.m.	1:31 p.m.	1:33 p.m.	
Sounding (ft)			44	28	30		
Temperature (°F)	Top	74	74	74	74	74	T. 74
	Bottom		75	74	74		B. 74
pH	Top	6.6	6.6	6.7	6.7	6.7	T. 6.7
	Bottom		6.6	6.6	6.6		B. 6.6
Specific conductance (micromhos at 25°C)	Top	181	175	152	155	153	T. 163
	Bottom		159	150	160		B. 156
Dissolved oxygen	Top	.9	1.3	2.7	2.9	3.4	T. 2.2
B. O. D. (5-day, 20°C)	Top	4.2	1.4	.0	.2	.0	T. 1.2
Chloride (Cl)	Top	9.0	9.0	7.0	7.0	7.0	T. 7.8
	Bottom		8.0	7.0	8.0		B. 7.7
Suspended sediment	Top	Composite					T. 29

Location Lehigh Avenue, Philadelphia, Pa. Date July 5, 1951 Sampling study No. 23
Weather Cloudy Water discharge at Trenton (cfs) 9,190

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		9:09 a.m.	9:05 a.m.	9:01 a.m.	8:57 a.m.	8:55 a.m.	
Sounding (ft)			38	32	20		
Temperature (°F)	Top	78	78	78	78	78	T. 78
	Bottom		78	78	78		B. 78
pH	Top	6.7	6.9	6.9	6.9	6.9	T. 6.9
	Bottom		6.7	6.8	6.8		B. 6.8
Specific conductance (micromhos at 25°C)	Top	186	165	162	169	166	T. 170
	Bottom		166	170	170		B. 169
Dissolved oxygen	Top	1.1	2.6	3.9	3.3	3.0	T. 2.8
B. O. D. (5-day, 20°C)	Top	1.3	1.0	.7	.1	.4	T. .7
Chloride (Cl)	Top	9.0	8.0	8.0	8.0	8.0	T. 8.2
	Bottom		8.0	8.0	8.0		B. 8.0
Suspended sediment	Top	Composite					T. 13

Location Lehigh Avenue, Philadelphia, Pa. Date August 1, 1951 Sampling study No. 24
Weather Cloudy Water discharge at Trenton (cfs) 12,400

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		8:58 a.m.	8:56 a.m.	8:54 a.m.	8:52 a.m.	8:50 a.m.	
Sounding (ft)			40	32	30		
Temperature (°F)	Top	78	78	78	78	79	T. 78
	Bottom		78	78	78		B. 78
pH	Top	6.9	6.9	6.9	6.8	6.9	T. 6.9
	Bottom		6.9	7.0	8.0		B. 7.3
Specific conductance (micromhos at 25°C)	Top	174	174	176	161	162	T. 169
	Bottom		164	163	161		B. 163
Dissolved oxygen	Top	3.3	3.1	3.3	5.0	4.2	T. 3.8
B. O. D. (5-day, 20°C)	Top	.8	.0	.6	3.0	10.2	T. 2.9
Chloride (Cl)	Top	7.0	7.0	7.0	7.0	7.0	T. 7.0
	Bottom		7.0	7.0	7.0		B. 7.0
Suspended sediment	Top	Composite					T. 17

Table 9.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.--Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Lehigh Avenue, Philadelphia, Pa. Date September 6, 1951 Sampling study No. 25
Weather Rain Water discharge at Trenton (cfs) 3,810

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		9:00 a.m.	9:02 a.m.	9:04 a.m.	9:06 a.m.	9:08 a.m.	
Sounding (ft)			41	35	25		
Temperature (°F)	Top	77	77	76	76	76	T. 76
	Bottom		77	76	76		B. 76
pH	Top	6.6	6.6	6.5	6.6	6.6	T. 6.6
	Bottom		6.5	6.5	6.5		B. 6.5
Specific conductance (micromhos at 25°C)	Top	252	249	250	247	239	T. 247
	Bottom		250	252	247		B. 250
Dissolved oxygen	Top	.9	.8	.8	.9	1.2	T. .9
B. O. D. (5-day, 20°C)	Top	7.3	5.4	5.0	5.5	5.1	T. 5.9
Chloride (Cl)	Top	11	11	11	11	10	T. 11
	Bottom		11	11	11		B. 11
Suspended sediment	Top	Composite					T. 38

Location Lehigh Avenue, Philadelphia, Pa. Date October 4, 1951 Sampling study No. 26
Weather Clear Water discharge at Trenton (cfs) 2,990

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		9:55 a.m.	9:52 a.m.	9:49 a.m.	9:47 a.m.	9:44 a.m.	
Sounding (ft)			40	33	18		
Temperature (°F)	Top	71	70	69	69	70	T. 70
	Bottom		70	70	69		B. 70
pH	Top	6.3	6.3	6.4	6.4	6.3	T. 6.3
	Bottom		6.2	6.3	6.3		B. 6.3
Specific conductance (micromhos at 25°C)	Top	272	244	229	234	247	T. 245
	Bottom		246	229	235		B. 237
Dissolved oxygen	Top	1.4	1.6	4.0	2.7	2.6	T. 2.5
B. O. D. (5-day, 20°C)	Top	7.2	1.8	2.0	2.6	2.4	T. 2.4
Chloride (Cl)	Top	14	13	12	12	13	T. 13
	Bottom		12	11	11		B. 11
Suspended sediment	Top	Composite					T. 17

Location Lehigh Avenue, Philadelphia, Pa. Date November 7, 1951 Sampling study No. 27
Weather Cloudy Water discharge at Trenton (cfs) 37,700

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		2:54 p.m.	2:56 p.m.	2:59 p.m.	3:02 p.m.	3:04 p.m.	
Sounding (ft)			45	43	42		
Temperature (°F)	Top	49	46	46	46	46	T. 47
	Bottom		48	47	46		B. 47
pH	Top	6.3	6.4	6.5	6.6	6.6	T. 6.5
	Bottom		6.3	6.3	6.6		B. 6.4
Specific conductance (micromhos at 25°C)	Top	143	116	106	102	106	T. 115
	Bottom		121	120	123		B. 115
Dissolved oxygen	Top	9.1	10.2	10.7	10.8	10.4	T. 10.2
B. O. D. (5-day, 20°C)	Top	8.3	4.7	2.7	1.8	1.6	T. 3.8
Chloride (Cl)	Top	7.0	5.0	4.0	4.0	4.0	T. 4.8
	Bottom		4.0	4.0	4.0		B. 4.0
Suspended sediment	Top	Composite					T. 38

Location Lehigh Avenue, Philadelphia, Pa. Date December 5, 1951 Sampling study No. 28
Weather Rain Water discharge at Trenton (cfs) 12,500

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:18 a.m.	10:16 a.m.	10:14 a.m.	10:12 a.m.	10:10 a.m.	
Sounding (ft)			44	39	25		
Temperature (°F)	Top	44	43	42	42	45	T. 43
	Bottom		43	42	43		B. 43
pH	Top	6.3	6.4	6.5	6.5	6.5	T. 6.4
	Bottom		6.3	6.4	6.4		B. 6.4
Specific conductance (micromhos at 25°C)	Top	174	155	146	142	139	T. 151
	Bottom		160	147	144		B. 150
Dissolved oxygen	Top	8.7	9.1	9.2	11.2	10.4	T. 9.9
B. O. D. (5-day, 20°C)	Top	6.6	5.7	3.4	2.2	3.2	T. 5.2
Chloride (Cl)	Top	10	8.0	7.0	7.0	6.0	T. 7.6
	Bottom		8.0	7.0	7.0		B. 7.3
Suspended sediment	Top	Composite					T. 27

Table 9.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.--Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Lehigh Avenue, Philadelphia, Pa. Date January 3, 1952 Sampling study No. 29
Weather Clear Water discharge at Trenton (cfs) 30,500

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		9:40 a.m.	9:36 a.m.	9:34 a.m.	9:32 a.m.	9:30 a.m.	
Sounding (ft)			43	34	24		
Temperature (°F)	Top	39	38	38	37	37	T. 38
	Bottom		38	38	38		B. 38
pH	Top	6.8	7.0	7.1	7.0	7.0	T. 7.0
	Bottom		6.8	6.8	6.9		B. 6.8
Specific conductance (micromhos at 25°C)	Top	151	134	132	130	128	T. 135
	Bottom		137	133	130		B. 133
Dissolved oxygen	Top	10.7	10.9	10.4	10.2	10.3	T. 10.5
B. O. D. (5-day, 20°C)	Top	7.4	2.4	1.5	1.2	2.7	T. 3.0
Chloride (Cl)	Top	6.0	5.0	4.0	5.0	4.0	T. 4.8
	Bottom		4.0	4.0	4.0		B. 4.0
Suspended sediment	Top	Composite					T. 22

Location Lehigh Avenue, Philadelphia, Pa. Date February 5, 1952 Sampling study No. 30
Weather Overcast Water discharge at Trenton (cfs) 29,800

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:35 a.m.	11:37 a.m.	11:39 a.m.	11:42 a.m.	11:45 a.m.	
Sounding (ft)			45	32	21		
Temperature (°F)	Top	40	40	39	39	39	T. 39
	Bottom		40	39	39		B. 39
pH	Top	6.5	6.6	6.6	6.6	6.5	T. 6.6
	Bottom		6.7	6.6	6.7		B. 6.7
Specific conductance (micromhos at 25°C)	Top	137	127	121	120	123	T. 126
	Bottom		127	122	125		B. 125
Dissolved oxygen	Top	12.5	12.2	12.4	12.6	12.2	T. 12.4
B. O. D. (5-day, 20°C)	Top	5.4	3.1	3.5	3.8	3.6	T. 3.9
Chloride (Cl)	Top	4.0	4.0	4.0	4.0	4.0	T. 4.0
	Bottom		5.0	4.0	4.0		B. 4.3
Suspended sediment	Top	Composite					T. 38

Location Lehigh Avenue, Philadelphia, Pa. Date March 5, 1952 Sampling study No. 31
Weather Slightly Cloudy Water discharge at Trenton (cfs) 9,730

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:03 p.m.	12:00 n.	11:56 a.m.	11:53 a.m.	11:50 a.m.	
Sounding (ft)			35	25	20		
Temperature (°F)	Top	40	40	40	39	39	T. 40
	Bottom		40	40	40		B. 40
pH	Top	7.4	6.4	6.5	6.5	6.4	T. 6.6
	Bottom		6.4	6.9	6.5		B. 6.6
Specific conductance (micromhos at 25°C)	Top	178	176	180	169	170	T. 175
	Bottom		178	170	171		B. 173
Dissolved oxygen	Top	9.0	9.2	9.3	9.7	9.6	T. 9.4
B. O. D. (5-day, 20°C)	Top	5.2	5.2	3.3	4.0	3.4	T. 4.2
Chloride (Cl)	Top	8.0	8.0	9.0	6.0	8.0	T. 7.8
	Bottom		8.0	7.0	8.0		B. 7.7
Suspended sediment	Top	Composite					T. 23

Location Lehigh Avenue, Philadelphia, Pa. Date April 2, 1952 Sampling study No. 32
Weather Clear Water discharge at Trenton (cfs) 22,700

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:55 a.m.	11:58 a.m.	12:01 p.m.	12:04 p.m.	12:07 p.m.	
Sounding (ft)			42	34	22		
Temperature (°F)	Top	51	51	50	50	49	T. 50
	Bottom		51	50	50		B. 50
pH	Top	6.2	7.0	6.5	6.5	6.6	T. 6.6
	Bottom		6.3	6.5	6.6		B. 6.5
Specific conductance (micromhos at 25°C)	Top	125	114	97.0	93.5	92.8	T. 104
	Bottom		114	97.3	93.7		B. 102
Dissolved oxygen	Top	7.7	8.2	9.2	9.4	9.2	T. 8.7
B. O. D. (5-day, 20°C)	Top	4.5	1.8	.7	.4	1.1	T. 1.7
Chloride (Cl)	Top	5.0	4.0	4.0	3.0	3.0	T. 3.8
	Bottom		4.0	3.0	3.0		B. 3.3
Suspended sediment	Top	Composite					T. 13

Table 9.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.--Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Lehigh Avenue, Philadelphia, Pa. Date May 5, 1952 Sampling study No. 33
Weather Cloudy Water discharge at Trenton (cfs) 16,700

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		9:05 a.m.	9:08 a.m.	9:11 a.m.	9:14 a.m.	9:17 a.m.	
Sounding (ft)			46	43	34		
Temperature (°F)	Top	59	58	58	58	58	T. 58
	Bottom		59	58	58		B. 58
pH	Top	6.3	6.5	6.5	6.6	6.5	T. 6.5
	Bottom		6.4	6.5	6.6		B. 6.5
Specific conductance (micromhos at 25°C)	Top	126	120	113	113	109	T. 116
	Bottom		122	118	111		B. 117
Dissolved oxygen	Top	6.6	7.1	7.6	8.0	8.1	T. 7.5
B. O. D. (5-day, 20°C)	Top	1.3	1.4	2.0	2.3	2.8	T. 2.2
Chloride (Cl)	Top	4.0	4.0	4.0	4.0	3.0	T. 3.8
	Bottom		4.0	3.0	3.0		B. 3.3
Suspended sediment	Top	Composite					T. 21

Location Lehigh Avenue, Philadelphia, Pa. Date June 4, 1952 Sampling study No. 34
Weather Cloudy Water discharge at Trenton (cfs) 28,600

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		8:57 a.m.	8:59 a.m.	9:01 a.m.	9:02 a.m.	9:04 a.m.	
Sounding (ft)			44	40	33		
Temperature (°F)	Top	67	66	67	67	67	T. 67
	Bottom		68	67	68		B. 68
pH	Top	6.6	6.7	6.8	6.8	6.8	T. 6.7
	Bottom		6.7	6.7	6.7		B. 6.7
Specific conductance (micromhos at 25°C)	Top	123	114	112	107	107	T. 113
	Bottom		115	110	108		B. 111
Dissolved oxygen	Top	5.9	6.3	6.7	7.1	7.3	T. 6.7
B. O. D. (5-day, 20°C)	Top	3.8	2.0	.5	1.6	1.9	T. 2.0
Chloride (Cl)	Top	5.0	4.0	4.0	3.0	3.0	T. 3.8
	Bottom		4.0	3.0	3.0		B. 3.3
Suspended sediment	Top	Composite					T. 23

Location Lehigh Avenue, Philadelphia, Pa. Date July 7, 1952 Sampling study No. 35
Weather Light Clouds Water discharge at Trenton (cfs) 3,370

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		9:20 a.m.	9:22 a.m.	9:24 a.m.	9:26 a.m.	9:28 a.m.	
Sounding (ft)			40	33	27		
Temperature (°F)	Top	80	80	80	80	80	T. 80
	Bottom		80	81	80		B. 80
pH	Top	6.6	6.8	6.8	6.8	6.8	T. 6.8
	Bottom		6.8	6.8	6.9		B. 6.8
Specific conductance (micromhos at 25°C)	Top	205	192	182	182	187	T. 190
	Bottom		198	184	190		B. 191
Dissolved oxygen	Top	1.0	1.5	2.0	2.3	2.7	T. 1.9
B. O. D. (5-day, 20°C)	Top	1.0	.0	.0	.0	.0	T. .2
Chloride (Cl)	Top	10	8.0	8.0	8.0	8.0	T. 8.4
	Bottom		10	8.0	8.0		B. 8.7
Suspended sediment	Top	Composite					T. 11

Location Lehigh Avenue, Philadelphia, Pa. Date August 6, 1952 Sampling study No. 36
Weather Cloudy Water discharge at Trenton (cfs) 4,020

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		1:38 p.m.	1:40 p.m.	1:42 p.m.	1:45 p.m.	1:47 p.m.	
Sounding (ft)			48	42	28		
Temperature (°F)	Top	83	83	82	83	83	T. 83
	Bottom		82	82	82		B. 82
pH	Top	6.7	6.7	6.6	6.6	6.6	T. 6.6
	Bottom		6.7	6.7	6.7		B. 6.7
Specific conductance (micromhos at 25°C)	Top	215	215	215	214	214	T. 215
	Bottom		217	215	215		B. 216
Dissolved oxygen	Top	1.1	1.0	.5	.9	1.0	T. .9
B. O. D. (5-day, 20°C)	Top	5.0	4.5	9.2	8.1	2.5	T. 5.9
Chloride (Cl)	Top	11	12	12	12	12	T. 12
	Bottom		12	12	12		B. 12
Suspended sediment	Top	Composite					T. 48

Table 9. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Lehigh Avenue, Philadelphia, Pa. Date September 3, 1952 Sampling study No. 37
Weather Hazy Water discharge at Trenton (cfs) 32,000

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		9:25 a.m.	9:23 a.m.	9:20 a.m.	9:17 a.m.	9:15 a.m.	
Sounding (ft)			41	31	21		
Temperature (°F)	Top	76	76	76	76	76	T. 76
	Bottom		76	76	76		B. 76
pH	Top	6.5	6.4	6.4	6.5	6.5	T. 6.5
	Bottom		6.5	6.5	6.4		B. 6.5
Specific conductance (micromhos at 25°C)	Top	183	190	176	175	176	T. 180
	Bottom		181	173	182		B. 179
Dissolved oxygen	Top	6.8	5.6	7.0	6.8	6.9	T. 6.6
B. O. D. (5-day, 20°C)	Top	3.7	1.8	1.6	2.4	1.6	T. 2.2
Chloride (Cl)	Top	8.5	9.5	7.5	7.5	7.5	T. 8.1
	Bottom		8.5	7.0	8.5		B. 8.0
Suspended sediment	Top	Composite					T. 9

Location Lehigh Avenue, Philadelphia, Pa. Date October 6, 1952 Sampling study No. 38
Weather Clear Water discharge at Trenton (cfs) 4,800

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:00 a.m.	10:57 a.m.	10:55 a.m.	10:52 a.m.	10:50 a.m.	
Sounding (ft)			39	29	17		
Temperature (°F)	Top	68	67	67	67	68	T. 67
	Bottom		67	67	67		B. 67
pH	Top	6.4	6.6	6.6	6.6	6.6	T. 6.6
	Bottom		6.5	6.6	6.7		B. 6.6
Specific conductance (micromhos at 25°C)	Top	221	201	195	201	218	T. 207
	Bottom		199	195	204		B. 199
Dissolved oxygen	Top	2.0	4.4	4.9	4.8	3.3	T. 3.9
B. O. D. (5-day, 20°C)	Top	1.8	2.1	1.9	2.7	3.1	T. 2.3
Chloride (Cl)	Top	11	9.5	9.5	10	12	T. 10
	Bottom		10	9.5	10		B. 9.8
Suspended sediment	Top	Composite					T. 7

Location Lehigh Avenue, Philadelphia, Pa. Date November 6, 1952 Sampling study No. 39
Weather Clear Water discharge at Trenton (cfs) 3,130

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:04 a.m.	10:01 a.m.	9:58 a.m.	9:55 a.m.	9:52 a.m.	
Sounding (ft)			41	32	23		
Temperature (°F)	Top	55	55	55	53	53	T. 54
	Bottom		53	53	53		B. 53
pH	Top	6.4	6.5	7.6	6.6	6.7	T. 6.8
	Bottom		6.5	6.6	6.7		B. 6.6
Specific conductance (micromhos at 25°C)	Top	306	285	276	278	304	T. 290
	Bottom		290	278	290		B. 286
Dissolved oxygen	Top	2.4	2.8	3.5	4.0	2.7	T. 3.1
B. O. D. (5-day, 20°C)	Top	9.8	7.6	6.5	3.0	6.5	T. 6.7
Chloride (Cl)	Top	20	17	17	18	19	T. 18
	Bottom		18	18	18		B. 18
Suspended sediment	Top	Composite					T. 8

Location Lehigh Avenue, Philadelphia, Pa. Date December 4, 1952 Sampling study No. 40
Weather Clear Water discharge at Trenton (cfs) 10,300

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:33 a.m.	10:30 a.m.	10:27 a.m.	10:24 a.m.	10:21 a.m.	
Sounding (ft)			28	32	41		
Temperature (°F)	Top	44	41	41	42	44	T. 42
	Bottom		41	41	42		B. 41
pH	Top	6.5	6.6	6.8	6.8	7.0	T. 6.7
	Bottom		6.6	6.6	6.7		B. 6.6
Specific conductance (micromhos at 25°C)	Top	155	128	122	121	119	T. 129
	Bottom		128	121	122		B. 124
Dissolved oxygen	Top	9.4	10.4	10.6	10.6	10.3	T. 10.3
B. O. D. (5-day, 20°C)	Top	7.7	3.8	2.6	2.8	2.2	T. 3.8
Chloride (Cl)	Top	9.0	6.0	5.0	6.0	5.0	T. 6.2
	Bottom		6.0	6.0	5.5		B. 5.8
Suspended sediment	Top	Composite					T. 17

Table 10. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Philadelphia, Pa.-Camden, N. J. Bridge Date August 2, 1949 Sampling study No. 1
Weather Cloudy Water discharge at Trenton (cfs) 2,940

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		—	—	9:30 a.m.	—	—	
Sounding (ft)		27	34	40	—	17	
Temperature (°F)	Top	84	84	84	84	84	T. 84
	Bottom	84	84	84	84	84	B. 84
Color	Bottom	25	30	25	45	30	B. 31
pH	Top	6.1	6.0	6.1	6.1	6.0	T. 6.1
	Bottom	6.1	6.1	6.1	6.3	6.2	B. 6.2
Specific conductance (micromhos at 25°C)	Top	285	287	283	277	277	T. 282
	Bottom	281	284	274	274	272	B. 277
Dissolved oxygen	Top	.0	.0	.1	.0	.0	T. .0
B. O. D. (5-day, 20°C)	Top	18	17	15	20	20	T. 18
Silica (SiO_2)	Bottom	2.6	2.9	2.9	2.6	2.6	B. 2.7
Iron (Fe)	Bottom	.04	.06	.04	.19	.07	B. .08
Calcium (Ca)	Bottom	20	21	20	20	20	B. 20
Magnesium (Mg)	Bottom	7.6	7.5	7.6	7.3	7.4	B. 7.5
Sodium (Na)	Bottom	20	17	17	19	17	B. 18
Bicarbonate (HCO_3)	Bottom	58	55	55	55	54	B. 55
Sulfate (SO_4)	Bottom	40	42	41	42	40	B. 41
Chloride (Cl)	Top	18	18	17	17	17	T. 17
	Bottom	17	18	16	16	17	B. 17
Fluoride (F)	Bottom	.2	.2	.2	.2	.2	B. .2
Nitrate (NO_3)	Bottom	8.5	8.1	7.8	8.0	7.8	B. 8.0
Dissolved solids	Bottom	162	165	160	161	159	B. 161
Hardness as $CaCO_3$	Bottom	81	84	81	80	80	B. 81
Suspended sediment	Top	Composite					T. —

Location Philadelphia, Pa.-Camden, N. J. Bridge Date September 6, 1949 Sampling study No. 2
Weather Cloudy Water discharge at Trenton (cfs) 5,310

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		—	—	2:15 p.m.	—	—	
Sounding (ft)		29	45	47	32	7	
Temperature (°F)	Top	78	78	78	78	78	T. 78
	Bottom	78	78	77	77	78	B. 78
Color	Bottom	17	20	17	17	17	B. 18
pH	Top	6.5	6.5	6.6	6.5	6.5	T. 6.5
	Bottom	6.6	7.5	7.2	6.3	7.2	B. 7.0
Specific conductance (micromhos at 25°C)	Top	361	401	394	382	363	T. 380
	Bottom	351	377	372	359	349	B. 362
Dissolved oxygen	Top	.7	.2	.8	.3	.7	T. .5
B. O. D. (5-day, 20°C)	Top	3.7	2.2	3.8	3.3	3.7	T. 3.3
Silica (SiO_2)	Bottom	4.0	4.1	4.4	3.8	3.7	B. 4.0
Iron (Fe)	Bottom	.06	.06	.06	.06	.06	B. .06
Calcium (Ca)	Bottom	24	24	24	24	24	B. 24
Magnesium (Mg)	Bottom	9.0	9.5	9.1	9.0	8.7	B. 9.1
Sodium (Na)	Bottom	27	33	32	29	26	B. 29
Bicarbonate (HCO_3)	Bottom	60	58	57	58	60	B. 59
Sulfate (SO_4)	Bottom	54	55	56	55	52	B. 54
Chloride (Cl)	Top	33	42	40	37	33	T. 37
	Bottom	32	39	39	34	32	B. 35
Fluoride (F)	Bottom	.2	.2	.2	.2	.2	B. .2
Nitrate (NO_3)	Bottom	9.1	9.3	8.9	8.4	7.4	B. 8.6
Dissolved solids	Bottom	219	233	233	224	215	B. 225
Hardness as $CaCO_3$	Bottom	97	99	97	97	96	B. 97
Suspended sediment	Top	Composite					T. 22

Table 10. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Philadelphia, Pa.-Camden, N. J. Bridge Date October 4, 1949 Sampling study No. 3
Weather Occasional Rain Water discharge at Trenton (cfs) 3,520

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		—	—	2:30 p.m.	—	—	
Sounding (ft)		41	45	45	32	13	
Temperature (°F)	Top	70	70	70	70	70	T. 70
	Bottom	70	70	70	70	71	B. 70
Color	Bottom	13	15	16	16	18	B. 16
pH	Top	6.4	6.5	6.4	6.6	6.6	T. 6.5
	Bottom	6.6	6.4	6.5	6.4	6.5	B. 6.5
Specific conductance (micromhos at 25°C)	Top	434	430	442	405	397	T. 422
	Bottom	429	442	436	400	385	B. 418
Dissolved oxygen	Top	1.4	1.5	1.6	1.5	2.0	T. 1.6
B. O. D. (5-day, 20°C)	Top	5.1	5.2	5.3	.4	1.8	T. 3.6
Silica (SiO_2)	Bottom	2.8	2.6	2.7	2.2	2.5	B. 2.6
Iron (Fe)	Bottom	.12	.19	.12	.14	.19	B. .15
Calcium (Ca)	Bottom	24	24	24	23	24	B. 24
Magnesium (Mg)	Bottom	11	11	11	11	10	B. 11
Sodium (Na)	Bottom	36	37	38	33	30	B. 35
Bicarbonate (HCO_3)	Bottom	50	48	49	49	53	B. 50
Sulfate (SO_4)	Bottom	62	64	64	61	58	B. 62
Chloride (Cl)	Top	52	50	52	46	42	T. 48
	Bottom	49	51	52	45	40	B. 47
Fluoride (F)	Bottom	.2	.3	.3	.3	.3	B. .3
Nitrate (NO_3)	Bottom	9.7	9.1	9.8	8.4	9.0	B. 9.2
Dissolved solids	Bottom	242	248	246	230	223	B. 238
Hardness as $CaCO_3$	Bottom	105	105	105	103	101	B. 104
Suspended sediment	Top	Composite					T. 23

Location Philadelphia, Pa.-Camden, N. J. Bridge Date November 1, 1949 Sampling study No. 4
Weather Clear Water discharge at Trenton (cfs) 3,340

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		—	—	3:00 p.m.	—	—	
Sounding (ft)		42	42	41	29	12	
Temperature (°F)	Top	54	58	56	58	57	T. 57
	Bottom	57	58	56	58	54	B 57
Color	Bottom	10	10	9	13	12	B. 11
pH	Top	6.7	6.6	6.6	6.6	6.6	T. 6.6
	Bottom	7.4	7.5	7.5	7.4	7.3	B. 7.4
Specific conductance (micromhos at 25°C)	Top	403	414	419	423	409	T. 414
	Bottom	396	401	418	418	380	B. 403
Dissolved oxygen	Top	1.1	1.0	1.3	2.0	2.6	T. 1.6
B. O. D. (5-day, 20°C)	Top	9.0	6.6	8.0	8.0	4.0	T. 7.1
Silica (SiO_2)	Bottom	1.9	2.0	1.9	2.0	2.2	B. 2.0
Iron (Fe)	Bottom	.08	.06	.06	.06	.08	B. .07
Calcium (Ca)	Bottom	22	22	22	23	22	B. 22
Magnesium (Mg)	Bottom	11	11	11	10	9.6	B. 11
Sodium (Na)	Bottom	33	34	36	37	33	B. 35
Bicarbonate (HCO_3)	Bottom	52	49	48	50	52	B. 50
Sulfate (SO_4)	Bottom	55	56	59	57	53	B. 56
Chloride (Cl)	Top	47	51	50	52	47	T. 49
	Bottom	45	48	51	51	44	B. 48
Fluoride (F)	Bottom	.3	.2	.2	.2	.3	B. .2
Nitrate (NO_3)	Bottom	6.6	7.7	7.5	7.8	7.4	B. 7.4
Dissolved solids	Bottom	223	227	236	237	217	B. 228
Hardness as $CaCO_3$	Bottom	100	100	100	98	94	B. 98
Suspended sediment	Top	Composite					T. 23

Table 10. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Philadelphia, Pa.-Camden, N. J. Bridge Date December 1, 1949 Sampling study No. 5
Weather Clear Water discharge at Trenton (cfs) 4,970

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		—	—	2:30 p.m.	—	—		
Sounding (ft)		41	41	26	26	12		
Temperature (°F)	Top	46	46	43	43	43	T.	44
	Bottom	45	44	42	43	43	B.	43
Color	Bottom	10	8	9	10	9	B.	9
pH	Top	6.3	6.4	6.5	6.5	6.5	T.	6.4
	Bottom	6.4	6.5	6.5	6.6	6.6	B.	6.5
Specific conductance (micromhos at 25°C)	Top	236	222	218	219	261	T.	231
	Bottom	227	221	215	212	230	B.	221
Dissolved oxygen	Top	3.8	4.2	4.3	4.5	4.3	T.	4.2
B. O. D. (5-day, 20°C)	Top	15.0	8.7	9.5	8.5	11.3	T.	10.6
Silica (SiO_2)	Bottom	4.2	3.6	4.1	4.1	4.8	B.	4.2
Iron (Fe)	Bottom	.05	.06	.05	.05	.05	B.	.05
Calcium (Ca)	Bottom	16	16	16	16	18	B.	16
Magnesium (Mg)	Bottom	5.9	6.0	5.9	5.8	7.5	B.	6.2
Sodium (Na)	Bottom	16	15	13	14	15	B.	15
Bicarbonate (HCO_3)	Bottom	35	34	34	34	36	B.	35
Sulfate (SO_4)	Bottom	41	39	38	38	37	B.	39
Chloride (Cl)	Top	16	16	14	15	22	T.	17
	Bottom	16	17	15	15	18	B.	16
Fluoride (F)	Bottom	.1	.1	.1	.1	.1	B.	.1
Nitrate (NO_3)	Bottom	6.8	7.0	6.4	6.8	7.8	B.	7.0
Dissolved solids	Bottom	135	130	126	124	137	B.	130
Hardness as $CaCO_3$	Bottom	64	65	64	64	76	B.	67
Suspended sediment	Top	Composite					T.	24

Location Philadelphia, Pa.-Camden, N. J. Bridge Date January 3, 1950 Sampling study No. 6
Weather Occasional Rain Water discharge at Trenton (cfs) 11,100

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		2:25 p.m.	2:23 p.m.	2:18 p.m.	2:10 p.m.	2:05 p.m.		
Sounding (ft)		45	45	36	23	26		
Temperature (°F)	Top	—	—	—	—	—	T.	—
	Bottom	—	—	—	—	—	B.	—
Color	Bottom	10	15	14	15	14	B.	14
pH	Top	6.2	6.5	6.5	6.5	6.4	T.	6.4
	Bottom	6.7	7.0	6.2	6.7	6.2	B.	6.6
Specific conductance (micromhos at 25°C)	Top	166	143	140	135	135	T.	144
	Bottom	135	133	138	132	132	B.	134
Dissolved oxygen	Top	8.3	8.3	8.2	8.8	9.0	T.	8.5
B. O. D. (5-day, 20°C)	Top	.0	.0	.0	.0	.0	T.	.0
Silica (SiO_2)	Bottom	5.5	5.6	5.6	5.5	5.4	B.	5.5
Iron (Fe)	Bottom	.12	.16	.13	.14	.15	B.	.14
Calcium (Ca)	Bottom	12	12	12	12	11	B.	12
Magnesium (Mg)	Bottom	4.1	4.2	4.5	4.2	4.2	B.	4.2
Sodium (Na)	Bottom	5.4	4.3	4.5	4.3	5.5	B.	4.8
Bicarbonate (HCO_3)	Bottom	17	16	15	13	14	B.	15
Sulfate (SO_4)	Bottom	28	29	31	32	31	B.	30
Chloride (Cl)	Top	12	9.0	7.0	7.0	8.0	T.	8.6
	Bottom	7.0	6.0	6.2	5.8	5.8	B.	6.2
Fluoride (F)	Bottom	.0	.0	.0	.0	.0	B.	.0
Nitrate (NO_3)	Bottom	6.8	6.0	6.1	5.3	5.8	B.	6.0
Dissolved solids	Bottom	85	86	89	86	84	B.	86
Hardness as $CaCO_3$	Bottom	47	47	48	47	45	B.	47
Suspended sediment	Top	Composite					T.	22

Table 10. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Philadelphia, Pa.-Camden, N. J. Bridge Date February 2, 1950 Sampling study No. 7
Weather Cloudy Water discharge at Trenton (cfs) 13,200

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		1:44 p.m.	1:40 p.m.	1:35 p.m.	1:30 p.m.	1:25 p.m.		
Sounding (ft)		45	46	46	34	8		
Temperature (°F)	Top	43	43	43	43	43	T.	43
	Bottom	42	42	42	41	42	B.	42
Color	Bottom	17	18	17	23	24	B.	20
pH	Top	6.6	6.6	6.5	6.6	6.5	T.	6.6
	Bottom	6.6	6.5	6.6	6.7	6.4	B.	6.6
Specific conductance (micromhos at 25°C)	Top	152	154	147	143	139	T.	147
	Bottom	163	162	149	142	145	B.	152
Dissolved oxygen	Top	6.6	7.3	7.8	8.3	8.4	T.	7.7
B. O. D. (5-day, 20°C)	Top	5.2	4.8	3.6	3.6	5.6	T.	4.6
Silica (SiO_2)	Bottom	5.5	5.7	5.5	5.7	5.5	B.	5.6
Iron (Fe)	Bottom	.12	.12	.21	.30	.21	B.	.19
Calcium (Ca)	Bottom	13	13	12	12	12	B.	12
Magnesium (Mg)	Bottom	4.1	4.2	3.8	3.7	3.8	B.	3.9
Sodium (Na)	Bottom	14	13	11	11	11	B.	12
Bicarbonate (HCO_3)	Bottom	34	31	28	29	28	B.	30
Sulfate (SO_4)	Bottom	32	32	30	30	30	B.	31
Chloride (Cl)	Top	10	9.0	8.0	8.0	8.0	T.	8.6
	Bottom	9.2	8.8	8.0	7.5	7.8	B.	8.3
Fluoride (F)	Bottom	.1	.1	.2	.1	.1	B.	.1
Nitrate (NO_3)	Bottom	6.0	7.8	5.7	3.6	6.0	B.	5.8
Dissolved solids	Bottom	106	96	95	91	96	B.	97
Hardness as $CaCO_3$	Bottom	49	50	46	45	46	B.	47
Suspended sediment	Top	Composite					T.	14

Location Philadelphia, Pa.-Camden, N. J. Bridge Date March 6, 1950 Sampling study No. 8
Weather Clear Water discharge at Trenton (cfs) 7,080

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		4:20 p.m.	4:15 p.m.	4:10 p.m.	4:05 p.m.	4:00 p.m.		
Sounding (ft)		40	26	45	29	7		
Temperature (°F)	Top	36	36	36	36	37	T.	36
	Bottom	36	36	35	36	36	B.	36
Color	Bottom	15	17	14	12	12	B.	14
pH	Top	6.5	6.6	6.5	6.6	6.7	T.	6.6
	Bottom	6.7	6.7	6.7	6.6	6.7	B.	6.7
Specific conductance (micromhos at 25°C)	Top	182	185	182	181	174	T.	181
	Bottom	185	188	185	184	177	B.	184
Dissolved oxygen	Top	9.1	8.7	8.9	9.1	9.9	T.	9.1
B. O. D. (5-day, 20°C)	Top	8.4	6.0	5.2	5.4	6.7	T.	6.3
Silica (SiO_2)	Bottom	6.1	5.8	5.8	5.7	5.7	B.	5.8
Iron (Fe)	Bottom	.01	.01	.01	.01	.01	B.	.01
Calcium (Ca)	Bottom	15	15	15	15	15	B.	15
Magnesium (Mg)	Bottom	5.3	5.4	5.3	5.4	5.5	B.	5.4
Sodium (Na)	Bottom	9.4	9.7	10	9.1	8.5	B.	9.3
Bicarbonate (HCO_3)	Bottom	26	24	25	22	28	B.	25
Sulfate (SO_4)	Bottom	35	38	38	38	34	B.	37
Chloride (Cl)	Top	10	10	10	10	10	T.	10
	Bottom	10	10	10	10	10	B.	10
Fluoride (F)	Bottom	.2	.2	.2	.1	.1	B.	.2
Nitrate (NO_3)	Bottom	9.1	8.6	8.2	9.1	7.4	B.	8.5
Dissolved solids	Bottom	113	117	111	110	107	B.	112
Hardness as $CaCO_3$	Bottom	59	60	59	60	60	B.	60
Suspended sediment	Top	Composite					T.	22

Table 10. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Philadelphia, Pa.-Camden, N. J. Bridge Date April 4, 1950 Sampling study No. 9
Weather Clear Water discharge at Trenton (cfs) 36,600

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		2:30 p.m.	2:22 p.m.	2:18 p.m.	2:14 p.m.	2:10 p.m.		
Sounding (ft)		46	44	46	35	12		
Temperature (°F)	Top	47	46	46	47	48	T.	47
	Bottom	47	46	45	46	48	B.	46
Color	Bottom	5	7	8	8	5	B.	7
pH	Top	6.6	6.6	6.7	6.5	6.6	T.	6.6
	Bottom	6.6	6.7	6.8	6.6	6.6	B.	6.7
Specific conductance (micromhos at 25°C)	Top	93.1	86.2	82.3	80.6	84.6	T.	85.4
	Bottom	93.5	88.0	82.7	80.7	85.9	B.	86.2
Dissolved oxygen	Top	9.8	10.3	10.6	10.6	10.4	T.	10.3
B. O. D. (5-day, 20°C)	Top	5.6	4.3	3.6	3.3	5.6	T.	4.5
Silica (SiO_2)	Bottom	4.4	4.4	4.2	4.3	4.2	B.	4.3
Iron (Fe)	Bottom	.05	.05	.05	.05	.04	B.	.05
Calcium (Ca)	Bottom	8.2	8.0	8.6	8.4	8.8	B.	8.4
Magnesium (Mg)	Bottom	2.9	3.2	2.9	2.7	2.6	B.	2.9
Sodium (Na)	Bottom	6.9	4.7	3.4	4.5	4.9	B.	4.9
Bicarbonate (HCO_3)	Bottom	20	18	16	16	18	B.	18
Sulfate (SO_4)	Bottom	19	18	18	20	17	B.	18
Chloride (Cl)	Top	5.0	4.0	4.0	4.0	6.0	T.	4.6
	Bottom	5.0	4.5	4.2	3.5	5.0	B.	4.4
Fluoride (F)	Bottom	.1	.1	.1	.1	.1	B.	.1
Nitrate (NO_3)	Bottom	4.7	4.0	3.5	3.4	4.2	B.	4.0
Dissolved solids	Bottom	64	62	59	59	61	B.	61
Hardness as $CaCO_3$	Bottom	32	33	33	32	33	B.	33
Suspended sediment	Top	Composite					T.	33

Location Philadelphia, Pa.-Camden, N. J. Bridge Date May 1, 1950 Sampling study No. 10
Weather Rain Water discharge at Trenton (cfs) 12,300

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		9:00 a.m.	9:04 a.m.	9:09 a.m.	9:15 a.m.	9:20 a.m.		
Sounding (ft)		36	42	40	32	5		
Temperature (°F)	Top	53	52	52	52	52	T.	52
	Bottom	53	52	51	51	51	B.	52
Color	Bottom	5	6	6	6	6	B.	6
pH	Top	6.6	6.7	6.9	6.9	6.6	T.	6.7
	Bottom	6.7	6.7	6.7	6.6	6.6	B.	6.7
Specific conductance (micromhos at 25°C)	Top	127	117	104	103	124	T.	115
	Bottom	127	109	104	102	121	B.	113
Dissolved oxygen	Top	6.5	8.0	9.0	8.8	7.6	T.	8.0
B. O. D. (5-day, 20°C)	Top	4.6	2.8	1.4	1.2	7.3	T.	3.5
Silica (SiO_2)	Bottom	4.0	4.0	3.6	3.7	5.0	B.	4.1
Iron (Fe)	Bottom	.05	.10	.06	.06	.05	B.	.06
Calcium (Ca)	Bottom	11	10	10	10	11	B.	10
Magnesium (Mg)	Bottom	4.1	3.6	3.4	3.3	3.6	B.	3.6
Sodium (Na)	Bottom	7.3	6.2	5.1	6.0	9.0	B.	6.7
Bicarbonate (HCO_3)	Bottom	31	25	25	27	33	B.	28
Sulfate (SO_4)	Bottom	23	21	20	20	21	B.	21
Chloride (Cl)	Top	8.0	7.0	6.0	6.0	8.0	T.	7.0
	Bottom	6.8	5.5	4.5	4.5	7.0	B.	5.7
Fluoride (F)	Bottom	.0	.0	.0	.0	.1	B.	.0
Nitrate (NO_3)	Bottom	1.4	3.9	3.0	3.0	3.6	B.	3.0
Dissolved solids	Bottom	82	73	71	70	81	B.	75
Hardness as $CaCO_3$	Bottom	44	40	39	38	42	B.	41
Suspended sediment	Top	Composite					T.	68

Table 10. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Philadelphia, Pa.-Camden, N. J. Bridge Date June 6, 1950 Sampling study No. 11
Weather Clear Water discharge at Trenton (cfs) 18,900

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		8:27 a.m.	8:34 a.m.	8:40 a.m.	8:45 a.m.	8:50 a.m.		
Sounding (ft)		38	44	44	41	10		
Temperature (°F)	Top	68	69	68	68	68	T.	68
	Bottom	67	67	67	67	67	B.	67
Color	Bottom	22	23	17	20	18	B.	20
pH	Top	6.4	6.4	6.4	6.4	6.4	T.	6.4
	Bottom	6.6	6.5	6.9	6.8	6.7	B.	6.7
Specific conductance (micromhos at 25°C)	Top	139	137	126	124	154	T.	136
	Bottom	139	133	126	123	154	B.	135
Dissolved oxygen	Top	1.8	2.2	3.3	4.2	3.4	T.	3.0
B. O. D. (5-day, 20°C)	Top	1.1	.0	.0	.0	.0	T.	.2
Silica (SiO_2)	Bottom	5.5	4.8	4.7	5.5	5.5	B.	5.2
Iron (Fe)	Bottom	.06	.04	.04	.05	.04	B.	.05
Calcium (Ca)	Bottom	13	13	12	12	14	B.	13
Magnesium (Mg)	Bottom	3.5	3.5	3.1	3.5	3.3	B.	3.4
Sodium (Na)	Bottom	5.6	5.9	2.8	3.8	6.5	B.	4.9
Bicarbonate (HCO_3)	Bottom	27	27	25	24	27	B.	26
Sulfate (SO_4)	Bottom	24	24	23	23	25	B.	24
Chloride (Cl)	Top	8.0	6.0	7.0	7.0	11	T.	7.8
	Bottom	6.9	5.8	5.4	5.0	9.2	B.	6.5
Fluoride (F)	Bottom	.1	.1	.1	.2	.1	B.	.1
Nitrate (NO_3)	Bottom	5.6	4.9	4.0	4.9	6.6	B.	5.2
Dissolved solids	Bottom	93	86	80	82	98	B.	88
Hardness as $CaCO_3$	Bottom	47	47	43	44	48	B.	46
Suspended sediment	Top	Composite					T.	17

Location Philadelphia, Pa.-Camden, N. J. Bridge Date July 6, 1950 Sampling study No. 12
Weather Light Rain Watsr discharge at Trenton (cfs) 6,130

		Station					Average	
		Pennsylvania side	Weat Center	Center	East Center	New Jersey side		
Time (EST)		1:15 p.m.	1:10 p.m.	1:08 p.m.	1:05 p.m.	1:00 p.m.		
Sounding (ft)		39	41	41	28	14		
Temperature (°F)	Top	78	77	78	77	77	T.	77
	Bottom	78	78	77	78	77	B.	78
Color	Bottom	8	7	8	7	7	B.	7
pH	Top	6.5	6.7	6.6	6.6	6.7	T.	6.6
	Bottom	7.1	7.2	6.8	7.0	6.3	B.	6.9
Specific conductance (micromhos at 25°C)	Top	180	164	147	158	194	T.	169
	Bottom	176	152	143	152	226	B.	170
Dissolved oxygen	Top	.7	1.0	2.0	1.4	1.0	T.	1.2
B. O. D. (5-day, 20°C)	Top	6.2	3.1	2.9	3.9	6.3	T.	4.5
Silica (SiO_2)	Bottom	4.6	4.7	4.5	4.5	7.3	B.	5.1
Iron (Fe)	Bottom	.06	.06	.04	.06	.06	B.	.06
Calcium (Ca)	Bottom	15	14	13	14	21	B.	15
Magnesium (Mg)	Bottom	5.1	4.8	4.7	4.9	6.1	B.	5.1
Sodium (Na)	Bottom	9.5	7.4	5.1	5.7	9.3	B.	7.4
Bicarbonate (HCO_3)	Bottom	36	35	34	33	44	B.	36
Sulfate (SO_4)	Bottom	30	27	24	26	32	B.	28
Chloride (Cl)	Top	10	9.0	8.0	9.0	16	T.	10
	Bottom	9.8	7.8	6.8	7.8	18	B.	10
Fluoride (F)	Bottom	.1	.1	.2	.2	.1	B.	.1
Nitrate (NO_3)	Bottom	6.0	4.2	4.5	4.6	5.1	B.	4.9
Dissolved solids	Bottom	109	93	86	92	137	B.	103
Hardness as $CaCO_3$	Bottom	82	74	67	72	101	B.	79
Suspended sediment	Top	Composite					T.	24

Table 10.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.--Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Philadelphia, Pa.-Camden, N. J. Bridge Date August 2, 1950 Sampling study No. 13
Weather Light Rain Water discharge at Trenton (cfs) 5,090

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		8:18 a.m.	8:22 a.m.	8:30 a.m.	8:35 a.m.	8:40 a.m.		
Sounding (ft)		44	44	41	30	21		
Temperature (°F)	Top	80	79	78	78	78	T.	79
	Bottom	80	80	79	79	79	B.	79
Color	Bottom	25	26	20	15	15	B.	20
pH	Top	6.3	6.3	6.2	6.4	6.5	T.	6.3
	Bottom	6.5	6.4	6.4	6.4	6.6	B.	6.5
Specific conductance (micromhos at 25°C)	Top	220	210	205	199	201	T.	207
	Bottom	220	209	205	199	194	B.	205
Dissolved oxygen	Top	.3	.4	.5	.5	.8	T.	.5
B. O. D. (5-day, 20°C)	Top	14.8	13.4	9.0	7.4	7.8	T.	10.5
Silica (SiO_2)	Bottom	6.0	6.2	5.5	6.6	5.5	B.	6.0
Iron (Fe)	Bottom	.31	.13	.04	.04	.06	B.	.12
Calcium (Ca)	Bottom	17	17	16	16	16	B.	16
Magnesium (Mg)	Bottom	5.5	5.6	5.5	5.3	5.0	B.	5.4
Sodium (Na)	Bottom	16	13	13	13	12	B.	13
Bicarbonate (HCO_3)	Bottom	56	53	51	50	48	B.	52
Sulfate (SO_4)	Bottom	35	34	34	33	32	B.	34
Chloride (Cl)	Top	12	13	11	10	12	T.	12
	Bottom	13	12	11	11	10	B.	11
Fluoride (F)	Bottom	.1	.1	.2	.2	.2	B.	.2
Nitrate (NO_3)	Bottom	.1	.1	.1	.1	.3	B.	.1
Dissolved solids	Bottom	128	122	119	115	113	B.	119
Hardness as $CaCO_3$	Bottom	65	65	62	62	60	B.	63
Suspended sediment	Top	Composite					T.	39

Location Philadelphia, Pa.-Camden, N. J. Bridge Date September 6, 1950 Sampling study No. 14
Weather Clear Water discharge at Trenton (cfs) 4,860

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey sids		
Time (EST)		8:55 a.m.	8:50 a.m.	9:00 a.m.	9:05 a.m.	9:10 a.m.		
Sounding (ft)		22	44	46	32	24		
Temperature (°F)	Top	77	76	76	77	76	T.	76
	Bottom	77	76	76	76	76	B.	76
Color	Bottom	12	18	15	15	10	B.	14
pH	Top	6.6	6.5	6.4	7.3	6.4	T.	6.6
	Bottom	6.7	6.8	6.7	6.6	6.8	B.	6.7
Specific conductance (micromhos at 25°C)	Top	239	247	235	233	233	T.	237
	Bottom	237	240	233	233	231	B.	235
Dissolved oxygen	Top	.0	.0	.0	.0	.0	T.	.0
B. O. D. (5-day, 20°C)	Top	12.9	13.5	9.6	9.9	9.3	T.	11
Silica (SiO_2)	Bottom	4.2	4.3	4.0	4.1	4.1	B.	4.1
Iron (Fe)	Bottom	.07	.32	.15	.05	.13	B.	.14
Calcium (Ca)	Bottom	18	18	18	18	17	B.	18
Magnesium (Mg)	Bottom	6.6	7.0	6.5	6.6	6.8	B.	6.7
Sodium (Na)	Bottom	15	15	14	14	14	B.	14
Bicarbonate (HCO_3)	Bottom	60	64	57	59	62	B.	60
Sulfate (SO_4)	Bottom	36	35	37	35	33	B.	35
Chloride (Cl)	Top	14	13	13	13	13	T.	13
	Bottom	14	14	13	14	13	B.	14
Fluoride (F)	Bottom	.2	.2	.2	.2	.2	B.	.2
Nitrate (NO_3)	Bottom	.1	.1	.1	.1	.1	B.	.1
Dissolved solids	Bottom	140	145	136	136	131	B.	138
Hardness as $CaCO_3$	Bottom	72	74	72	72	70	B.	72
Suspended sediment	Top	Composite					T.	38

Table 10. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Philadelphia, Pa.-Camden, N. J. Bridge Date October 3, 1950 Sampling study No. 15
Weather Misty Water discharge at Trenton (cfs) 2,840

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		10:00 a.m.	9:55 a.m.	9:50 a.m.	9:45 a.m.	9:40 a.m.		
Sounding (ft)		42	45	42	30	5		
Temperature (°F)	Top	68	68	68	68	68	T.	68
	Bottom	68	68	68	68	68	B.	68
Color	Bottom	15	14	15	13	12	B.	14
pH	Top	6.5	6.5	6.5	6.3	6.6	T.	6.5
	Bottom	6.5	6.4	6.4	6.3	6.5	B.	6.4
Specific conductance (micromhos at 25°C)	Top	260	251	258	243	281	T.	259
	Bottom	245	236	236	232	254	B.	241
Dissolved oxygen	Top	.0	.1	.3	.5	1.0	T.	.4
B. O. D. (5-day, 20°C)	Top	7.5	5.5	5.4	4.7	6.1	T.	5.8
Silica (SiO_2)	Bottom	6.0	6.2	6.7	5.9	6.2	B.	6.2
Iron (Fe)	Bottom	.05	.11	.06	.03	.02	B.	.05
Calcium (Ca)	Bottom	18	18	18	17	19	B.	18
Magnesium (Mg)	Bottom	6.3	6.0	6.1	6.1	6.8	B.	6.3
Sodium (Na)	Bottom	17	17	17	17	17	B.	17
Bicarbonate (HCO_3)	Bottom	42	42	41	41	41	B.	41
Sulfate (SO_4)	Bottom	42	42	43	42	43	B.	42
Chloride (Cl)	Top	15	15	15	14	19	T.	16
	Bottom	17	16	16	16	20	B.	17
Fluoride (F)	Bottom	.2	.2	.2	.2	.2	B.	.2
Nitrate (NO_3)	Bottom	8.2	7.4	7.4	6.9	7.1	B.	7.4
Dissolved solids	Bottom	147	142	147	142	152	B.	146
Hardness as $CaCO_3$	Bottom	71	70	70	68	75	B.	71
Suspended sediment	Top	Composite					T.	32

Location Philadelphia, Pa.-Camden, N. J. Bridge Date November 2, 1950 Sampling study No. 16
Weather Clear Water discharge at Trenton (cfs) 2,550

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		8:53 a.m.	8:58 a.m.	9:04 a.m.	9:09 a.m.	9:15 a.m.		
Sounding (ft)		4	30	42	42	38		
Temperature (°F)	Top	64	64	64	64	64	T.	64
	Bottom	63	63	63	64	65	B.	64
Color	Bottom	22	10	12	9	8	B.	12
pH	Top	6.5	6.5	6.5	6.6	6.6	T.	6.5
	Bottom	6.8	6.8	6.6	6.4	6.4	B.	6.6
Specific conductance (micromhos at 25°C)	Top	306	300	303	300	337	T.	309
	Bottom	328	287	287	292	292	B.	297
Dissolved oxygen	Top	.0	.0	.0	.0	.7	T.	.1
B. O. D. (5-day, 20°C)	Top	3.9	2.4	.6	.3	4.5	T.	2.3
Silica (SiO_2)	Bottom	4.3	5.5	6.1	4.2	5.9	B.	5.2
Iron (Fe)	Bottom	.07	.04	.03	.09	.02	B.	.05
Calcium (Ca)	Bottom	24	21	20	21	21	B.	21
Magnesium (Mg)	Bottom	8.7	7.9	8.2	7.7	7.8	B.	8.1
Sodium (Na)	Bottom	22	19	20	21	20	B.	20
Bicarbonats (HCO_3)	Bottom	47	42	41	44	44	B.	44
Sulfate (SO_4)	Bottom	53	53	56	55	52	B.	54
Chloride (Cl)	Top	20	20	20	20	28	T.	22
	Bottom	30	21	21	21	21	B.	23
Fluoride (F)	Bottom	.2	.2	.2	.2	.2	B.	.2
Nitrate (NO_3)	Bottom	8.8	8.4	8.4	9.3	11	B.	9.2
Dissolved solids	Bottom	193	171	171	174	174	B.	177
Hardness as $CaCO_3$	Bottom	96	85	84	84	84	B.	87
Suspended sediment	Top	Composite					T.	49

Table 10. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Philadelphia, Pa.-Camden, N. J. Bridge Date December 4, 1950 Sampling study No. 17
Weather Rain Water discharge at Trenton (cfs) 12,000

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		9:45 a.m.	9:50 a.m.	9:55 a.m.	10:00 a.m.	10:05 a.m.		
Sounding (ft)		38	42	43	39	26		
Temperature (°F)	Top	45	43	43	43	43	T.	43
	Bottom	43	43	43	43	43	B	43
Color	Bottom	18	20	27	28	27	B.	24
pH	Top	6.1	6.0	6.0	6.0	6.0	T.	6.0
	Bottom	6.8	7.0	6.8	6.9	7.0	B.	6.9
Specific conductance (micromhos at 25°C)	Top	121	116	115	114	111	T.	115
	Bottom	116	113	108	108	105	B.	110
Dissolved oxygen	Top	9.4	10.0	10.5	10.7	11.0	T.	10.3
B. O. D. (5-day, 20°C)	Top	6.2	5.3	5.1	5.2	5.2	T.	5.4
Silica (SiO_2)	Bottom	—	—	—	—	—	B.	—
Iron (Fe)	Bottom	—	—	—	—	—	B.	—
Calcium (Ca)	Bottom	—	—	—	—	—	B.	—
Magnesium (Mg)	Bottom	—	—	—	—	—	B.	—
Sodium (Na)	Bottom	—	—	—	—	—	B.	—
Bicarbonate (HCO_3)	Bottom	12	12	11	10	10	B.	11
Sulfate (SO_4)	Bottom	25	26	24	22	26	B.	25
Chloride (Cl)	Top	6.0	4.0	4.0	4.0	4.0	T.	4.4
	Bottom	6.5	6.2	6.2	6.0	6.0	B.	6.2
Fluoride (F)	Bottom	—	—	—	—	—	B.	—
Nitrate (NO_3)	Bottom	6.2	5.7	4.6	5.3	5.3	B.	5.4
Dissolved solids	Bottom	—	—	—	—	—	B.	--
Hardness as $CaCO_3$	Bottom	36	37	36	36	35	B.	36
Suspended sediment	Top	Composite					T.	47

Location Philadelphia, Pa.-Camden, N. J. Bridge Date January 3, 1951 Sampling study No. 18
Weather Overcast Water discharge at Trenton (cfs) 8,210

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		8:45 a.m.	8:48 a.m.	8:52 a.m.	8:55 a.m.	8:58 a.m.		
Sounding (ft)		45	44	48	32	26		
Temperature (°F)	Top	37	36	35	35	35	T.	36
	Bottom	37	36	36	35	35	B.	36
Color	Bottom	8		10		12	B.	10
pH	Top	6.4	6.5	6.5	6.5	6.5	T.	6.5
	Bottom	6.7	6.8	6.5	6.8	6.7	B.	6.7
Specific conductance (micromhos at 25°C)	Top	179	174	170	170	169	T.	172
	Bottom	172	180	164	175	165	B.	171
Dissolved oxygen	Top	6.7	7.5	8.6	8.5	8.1	T.	7.9
B. O. D. (5-day, 20°C)	Top	5.5	7.0	6.3	5.6	4.5	T.	5.8
Silica (SiO_2)	Bottom	7.4		6.9		5.2	B.	6.5
Iron (Fe)	Bottom	.07		.14		.30	B.	.17
Calcium (Ca)	Bottom	14		14		14	B.	14
Magnesium (Mg)	Bottom	5.4		5.2		5.3	B.	5.3
Sodium (Na)	Bottom	8.7		8.5		8.8	B.	8.7
Bicarbonate (HCO_3)	Bottom	25		25		27	B.	26
Sulfate (SO_4)	Bottom	34		34		35	B.	34
Chloride (Cl)	Top	8.0	8.0	8.0	8.0	7.0	T.	7.8
	Bottom	9.8	6.0	9.2	6.0	9.2	B.	8.0
Fluoride (F)	Bottom	.2		.2		.2	B.	.2
Nitrate (NO_3)	Bottom	7.5		7.4		5.4	B.	6.8
Dissolved solids	Bottom	108		106		103	B.	106
Hardness as $CaCO_3$	Bottom	57		56		57	B.	57
Suspended sediment	Top	Composite					T.	23

Table 10. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Philadelphia, Pa.-Camden, N. J. Bridge Date March 2, 1951 Sampling study No. 19
Weather Clear Water discharge at Trenton (cfs) 19,600

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		1:20 p.m.	1:24 p.m.	1:28 p.m.	1:32 p.m.	1:36 p.m.		
Sounding (ft)		41	43	43	34	25		
Temperature (°F)	Top	44	43	43	43	43	T.	43
	Bottom	44	42	42	42	42	B.	42
Color	Bottom	12		9		10	B.	10
pH	Top	6.4	6.7	6.8	6.7	6.8	T.	6.7
	Bottom	7.1	6.7	7.2	6.9	7.1	B.	7.0
Specific conductance (micromhos at 25°C)	Top	138	111	108	106	106	T.	114
	Bottom	137	114	106	107	105	B.	114
Dissolved oxygen	Top	10.8	12.9	13.1	12.6	12.6	T.	12.4
B. O. D. (5-day, 20°C)	Top	b11	5.9	5.7	5.3	5.9	T.	b6.8
Silica (SiO_2)	Bottom	4.6		4.8		4.4	B.	4.6
Iron (Fe)	Bottom	.14		.18		.14	B.	.15
Calcium (Ca)	Bottom	12		10		10	B.	11
Magnesium (Mg)	Bottom	4.1		3.8		3.6	B.	3.8
Sodium (Na)	Bottom	6.9		3.9		3.4	B.	4.7
Bicarbonate (HCO_3)	Bottom	27		22		21	B.	23
Sulfate (SO_4)	Bottom	25		20		20	B.	22
Chloride (Cl)	Top	6.0	5.0	4.0	4.0	4.0	T.	4.6
	Bottom	8.0	6.0	5.2	6.0	5.0	B.	6.0
Fluoride (F)	Bottom	.2		.2		.2	B.	.2
Nitrate (NO_3)	Bottom	3.0		3.0		2.5	B.	2.8
Dissolved solids	Bottom	83		69		65	B.	72
Hardness as $CaCO_3$	Bottom	47		41		40	B.	43
Suspended sediment	Top	Composite					T.	30

b Exceeded this value.

Location Philadelphia, Pa.-Camden, N. J. Bridge Date April 2, 1951 Sampling study No. 20
Weather Clear Water discharge at Trenton (cfs) 71,500

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		12:25 p.m.	12:22 p.m.	12:19 p.m.	12:17 p.m.	12:15 p.m.		
Sounding (ft)		45	49	48	36	28		
Temperature (°F)	Top	46	46	46	46	46	T.	46
	Bottom	46	46	45	45	46	B.	46
Color	Bottom	18		20		18	B.	19
pH	Top	6.7	6.8	6.8	6.9	7.0	T.	6.8
	Bottom	6.6	6.7	6.6	6.7	6.6	B.	6.6
Specific conductance (micromhos at 25°C)	Top	70.1	59.0	59.0	57.5	58.1	T.	60.7
	Bottom	72.2	66.7	60.9	58.8	59.8	B.	63.7
Dissolved oxygen	Top	11.0	11.3	10.9	11.4	11.0	T.	11.1
B. O. D. (5-day, 20°C)	Top	5.3	3.2	2.5	3.3	2.9	T.	3.4
Silica (SiO_2)	Bottom	—		—		—	B.	—
Iron (Fe)	Bottom	—		—		—	B.	—
Calcium (Ca)	Bottom	—		—		—	B.	—
Magnesium (Mg)	Bottom	—		—		—	B.	—
Sodium (Na)	Bottom	a3.9		a3.7		a2.4	B.	a3.3
Bicarbonate (HCO_3)	Bottom	12		12		10	B.	11
Sulfate (SO_4)	Bottom	14		13		13	B.	13
Chloride (Cl)	Top	3.0	3.0	3.0	3.0	3.0	T.	3.0
	Bottom	4.4	3.0	3.1	3.0	2.8	B.	3.3
Fluoride (F)	Bottom	—		—		—	B.	—
Nitrate (NO_3)	Bottom	3.6		2.9		2.0	B.	2.8
Dissolved solids	Bottom	—		—		—	B.	—
Hardness as $CaCO_3$	Bottom	25		22		22	B.	23
Suspended sediment	Top	Composite					T.	97

a Calculated Sodium and Potassium.

Table 10. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Philadelphia, Pa.-Camden, N. J. Bridge Date May 1, 1951 Sampling study No. 21
Weather Clear Water discharge at Trenton (cfs) 13,000

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		8:20 a.m.	8:25 a.m.	8:31 a.m.	8:35 a.m.	8:39 a.m.	
Sounding (ft)		45	46	48	39	27	
Temperature (°F)	Top	62	62	61	61	61	T. 61
	Bottom	61	61	61	61	61	B. 61
Color	Bottom	12		14		12	B. 13
pH	Top	6.7	6.7	6.8	6.9	6.8	T. 6.8
	Bottom	7.1	6.9	6.8	7.0	6.7	B. 6.9
Specific conductance (micromhos at 25°C)	Top	142	138	126	123	129	T. 132
	Bottom	141	134	126	127	128	B. 131
Dissolved oxygen	Top	4.3	4.2	6.1	6.2	5.7	T. 5.3
B. O. D. (5-day, 20°C)	Top	9.3	8.0	3.3	2.9	3.6	T. 5.4
Silica (SiO_2)	Bottom	6.2		5.7		5.6	B. 5.8
Iron (Fe)	Bottom	.05		.17		.11	B. .11
Calcium (Ca)	Bottom	12		11		11	B. 11
Magnesium (Mg)	Bottom	4.8		4.0		4.0	B. 4.3
Sodium (Na)	Bottom	4.6		5.5		4.6	B. 4.9
Bicarbonate (HCO_3)	Bottom	26		27		24	B. 26
Sulfate (SO_4)	Bottom	24		22		22	B. 23
Chloride (Cl)	Top	8.0	8.0	6.0	6.0	7.0	T. 7.0
	Bottom	7.5	6.0	6.5	6.0	6.8	B. 6.6
Fluoride (F)	Bottom	.0		.0		.0	B. .0
Nitrate (NO_3)	Bottom	4.0		3.0		2.9	B. 3.3
Dissolved solids	Bottom	86		78		80	B. 81
Hardness as $CaCO_3$	Bottom	50		44		44	B. 46
Suspended sediment	Top	Composite					T. 31

Location Philadelphia, Pa.-Camden, N. J. Bridge Date June 7, 1951 Sampling study No. 22
Weather Cloudy Water discharge at Trenton (cfs) 8,670

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		8:30 a.m.	8:32 a.m.	8:34 a.m.	8:36 a.m.	8:38 a.m.	
Sounding (ft)		38	41	44	30	25	
Temperature (°F)	Top	73	72	72	72	72	T. 72
	Bottom	72	72	72	72	72	B. 72
Color	Bottom	20		15		10	B. 15
pH	Top	6.9	6.6	6.6	6.6	6.6	T. 6.7
	Bottom	6.8	6.8	7.1	6.8	7.0	B. 6.9
Specific conductance (micromhos at 25°C)	Top	204	173	170	175	176	T. 180
	Bottom	194	174	171	172	175	B. 177
Dissolved oxygen	Top	1.5	1.4	1.4	1.4	1.7	T. 1.5
B. O. D. (5-day, 20°C)	Top	6.2	1.1	.0	.7	1.4	T. 1.9
Silica (SiO_2)	Bottom	4.7		4.1		5.0	B. 4.6
Iron (Fe)	Bottom	.07		.07		.08	B. .07
Calcium (Ca)	Bottom	15		14		14	B. 14
Magnesium (Mg)	Bottom	5.5		5.3		5.4	B. 5.4
Sodium (Na)	Bottom	10		8.2		9.0	B. 9.1
Bicarbonate (HCO_3)	Bottom	41		38		40	B. 40
Sulfate (SO_4)	Bottom	30		28		28	B. 29
Chloride (Cl)	Top	11	9.0	9.0	8.0	8.0	T. 9.0
	Bottom	10	9.0	8.5	9.0	8.5	B. 9.0
Fluoride (F)	Bottom	.1		.1		.1	B. .1
Nitrate (NO_3)	Bottom	4.9		4.1		4.3	B. 4.4
Dissolved solids	Bottom	110		100		105	B. 105
Hardness as $CaCO_3$	Bottom	60		57		57	B. 58
Suspended sediment	Top	Composite					T. 33

Table 10. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Philadelphia, Pa.-Camden, N. J. Bridge Date July 5, 1951 Sampling study No. 23
Weather Cloudy Water discharge at Trenton (cfs) 9,190

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		8:25 a.m.	8:29 a.m.	8:33 a.m.	8:37 a.m.	8:42 a.m.		
Sounding (ft)		34	41	42	33	19		
Temperature (°F)	Top	79	78	78	78	78	T.	78
	Bottom	78	78	78	78	77	B.	78
Color	Bottom	12		14		10	B.	12
pH	Top	6.9	6.8	6.8	6.8	6.5	T.	6.8
	Bottom	6.9	6.9	7.0	6.8	7.0	B.	6.9
Specific conductance (micromhos at 25°C)	Top	199	177	168	169	223	T.	187
	Bottom	199	175	171	166	227	B.	188
Dissolved oxygen	Top	.9	1.5	1.9	2.0	1.5	T.	1.6
B. O. D. (5-day, 20°C)	Top	1.8	.4	.3	.4	1.0	T.	.8
Silica (SiO_2)	Bottom	5.3		5.5		5.8	B.	5.5
Iron (Fe)	Bottom	.06		.08		.07	B.	.07
Calcium (Ca)	Bottom	18		17		19	B.	18
Magnesium (Mg)	Bottom	5.9		5.7		6.2	B.	5.9
Sodium (Na)	Bottom	9.7		4.3		13	B.	9.0
Bicarbonate (HCO_3)	Bottom	48		40		47	B.	45
Sulfate (SO_4)	Bottom	32		28		31	B.	30
Chloride (Cl)	Top	10	9.0	9.0	9.0	21	T.	12
	Bottom	9.8	9.0	7.2	9.0	19	B.	11
Fluoride (F)	Bottom	.2		.1		.1	B.	.1
Nitrate (NO_3)	Bottom	4.0		3.6		5.2	B.	4.3
Dissolved solids	Bottom	124		114		142	B.	127
Hardness as $CaCO_3$	Bottom	69		66		73	B.	69
Suspended sediment	Top	Composite					T.	19

Location Philadelphia, Pa.-Camden, N. J. Bridge Date August 1, 1951 Sampling study No. 24
Weather Cloudy Water discharge at Trenton (cfs) 12,400

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		8:25 a.m.	8:27 a.m.	8:29 a.m.	8:31 a.m.	8:32 a.m.		
Sounding (ft)		37	42	41	30	18		
Temperature (°F)	Top	79	79	79	79	79	T.	79
	Bottom	78	78	78	78	78	B.	78
Color	Bottom	7		7		7	B.	7
pH	Top	6.9	6.9	6.9	6.9	6.9	T.	6.9
	Bottom	7.8	7.0	7.8	7.0	7.8	B.	7.5
Specific conductance (micromhos at 25°C)	Top	178	178	164	161	170	T.	170
	Bottom	169	172	163	164	161	B.	166
Dissolved oxygen	Top	2.4	3.0	4.2	4.0	3.5	T.	3.4
B. O. D. (5-day, 20°C)	Top	1.8	.0	1.5	3.3	3.3	T.	2.0
Silica (SiO_2)	Bottom	5.8		6.2		5.8	B.	5.9
Iron (Fe)	Bottom	.01		.01		.01	B.	.01
Calcium (Ca)	Bottom	16		16		15	B.	16
Magnesium (Mg)	Bottom	5.2		4.9		4.9	B.	5.0
Sodium (Na)	Bottom	7.2		6.1		6.6	B.	6.6
Bicarbonate (HCO_3)	Bottom	42		42		42	B.	42
Sulfate (SO_4)	Bottom	29		29		27	B.	28
Chloride (Cl)	Top	8.0	8.0	8.0	8.0	8.0	T.	8.0
	Bottom	6.5	8.0	5.6	8.0	5.8	B.	6.8
Fluoride (F)	Bottom	.1		.1		.1	B.	.1
Nitrate (NO_3)	Bottom	5.3		5.1		4.8	B.	5.1
Dissolved solids	Bottom	106		105		100	B.	104
Hardness as $CaCO_3$	Bottom	61		60		58	B.	60
Suspended sediment	Top	Composite					T.	15

Table 10.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.--Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Philadelphia, Pa.-Camden, N. J. Bridge Date September 6, 1951 Sampling study No. 25
Weather Rain Water discharge at Trenton (cfs) 3,810

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		8:35 a.m.	8:37 a.m.	8:39 a.m.	8:41 a.m.	8:43 a.m.		
Sounding (ft)		35	42	43	31	21		
Temperature (°F)	Top	77	77	77	76	76	T.	77
	Bottom	77	77	77	77	76	B.	77
Color	Bottom	15		12		13	B.	13
pH	Top	6.4	6.4	6.3	6.5	6.4	T.	6.4
	Bottom	7.6	7.4	7.6	7.6	7.8	B.	7.6
Specific conductance (micromhos at 25°C)	Top	263	259	263	261	259	T.	261
	Bottom	252	246	240	236	226	B.	240
Dissolved oxygen	Top	.6	.7	.6	.7	.5	T.	.6
B. O. D. (5-day, 20°C)	Top	10.0	10.1	10.3	8.0	10.5	T.	9.8
Silica (SiO_2)	Bottom	6.3		2.2		3.4	B.	4.0
Iron (Fe)	Bottom	.06		.05		.05	B.	.05
Calcium (Ca)	Bottom	22		21		21	B.	21
Magnesium (Mg)	Bottom	7.2		7.2		7.2	B.	7.2
Sodium (Na)	Bottom	4.4		4.2		4.1	B.	4.2
Bicarbonate (HCO_3)	Bottom	52		50		52	B.	51
Sulfate (SO_4)	Bottom	49		46		44	B.	46
Chloride (Cl)	Top	12	12	13	12	12	T.	12
	Bottom	15	16	14	15	14	B.	15
Fluoride (F)	Bottom	.1		.0		.1	B.	.1
Nitrate (NO_3)	Bottom	8.2		7.6		8.0	B.	7.9
Dissolved solids	Bottom	154		147		144	B.	148
Hardness as $CaCO_3$	Bottom	84		80		80	B.	81
Suspended sediment	Top	Composite					T.	37

Location Philadelphia, Pa.-Camden, N. J. Bridge Date October 2, 1951 Sampling study No. 26
Weather Clear Water discharge at Trenton (cfs) 2,990

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		9:22 a.m.	9:24 a.m.	9:27 a.m.	9:29 a.m.	9:32 a.m.		
Sounding (ft)		36	39	40	29	28		
Temperature (°F)	Top	71	71	69	69	70	T.	70
	Bottom	70	70	69	69	69	B.	69
Color	Bottom	8		9		9	B.	9
pH	Top	6.2	6.2	6.5	6.3	6.3	T.	6.3
	Bottom	7.8	6.6	7.8	7.1	7.8	B.	7.4
Specific conductance (micromhos at 25°C)	Top	267	261	261	247	256	T.	258
	Bottom	266	229	234	229	244	B.	240
Dissolved oxygen	Top	1.1	1.5	2.5	2.0	1.8	T.	1.8
B. O. D. (5-day, 20°C)	Top	4.5	3.3	.3	.0	2.4	T.	2.1
Silica (SiO_2)	Bottom	2.0		2.0		2.0	B.	2.0
Iron (Fe)	Bottom	.05		.05		.05	B.	.05
Calcium (Ca)	Bottom	22		20		21	B.	21
Magnesium (Mg)	Bottom	7.6		6.9		7.1	B.	7.2
Sodium (Na)	Bottom	17		14		16	B.	16
Bicarbonate (HCO_3)	Bottom	54		54		50	B.	53
Sulfate (SO_4)	Bottom	50		43		45	B.	46
Chloride (Cl)	Top	16	16	16	14	15	T.	15
	Bottom	16	15	14	15	16	B.	15
Fluoride (F)	Bottom	.1		.1		.1	B.	.1
Nitrate (NO_3)	Bottom	7.8		7.0		12	B.	8.9
Dissolved solids	Bottom	160		142		155	B.	152
Hardness as $CaCO_3$	Bottom	86		78		82	B.	82
Suspended sediment	Top	Composite					T.	24

Table 10.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.--Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Philadelphia, Pa.-Camden, N. J. Bridge Date November 7, 1951 Sampling study No. 27
Weather Cloudy Water discharge at Trenton (cfs) 37,700

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		3:29 p.m.	3:26 p.m.	3:23 p.m.	3:21 p.m.	3:18 p.m.	
Sounding (ft)		18	18	46	45	20	
Temperature (°F)	Top	47	46	47	47	49	T. 47
	Bottom	48	47	48	49	50	B. 48
Color	Bottom	12		11		12	B. 12
pH	Top	6.3	6.5	6.5	6.6	6.5	T. 6.5
	Bottom	7.2	6.7	7.3	6.7	7.3	B. 7.0
Specific conductance (micromhos at 25°C)	Top	149	113	108	114	136	T. 124
	Bottom	147	105	107	105	121	B. 117
Dissolved oxygen	Top	9.1	10.2	10.0	10.6	9.4	T. 9.9
B. O. D. (5-day, 20°C)	Top	8.4	3.2	1.8	2.8	2.9	T. 3.8
Silica (SiO_2)	Bottom	5.3		5.1		3.9	B. 4.8
Iron (Fe)	Bottom	.01		.01		.01	B. .01
Calcium (Ca)	Bottom	12		10		13	B. 12
Magnesium (Mg)	Bottom	3.9		3.1		3.4	B. 3.5
Sodium (Na)	Bottom	7.3		3.3		3.4	B. 4.7
Bicarbonate (HCO_3)	Bottom	21		17		23	B. 20
Sulfate (SO_4)	Bottom	29		23		25	B. 26
Chloride (Cl)	Top	9.0	4.0	4.0	4.0	8.0	T. 5.8
	Bottom	9.0	5.0	4.0	5.0	6.0	B. 5.8
Fluoride (F)	Bottom	.1		.1		.1	B. .1
Nitrate (NO_3)	Bottom	4.1		3.3		3.7	B. 3.7
Dissolved solids	Bottom	111		79		86	B. 92
Hardness as $CaCO_3$	Bottom	46		38		47	B. 44
Suspended sediment	Top	Composite					T. 48

Location Philadelphia, Pa.-Camden, N. J. Bridge Date December 5, 1951 Sampling study No. 28
Weather Rain Water discharge at Trenton (cfs) 12,500

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		9:37 a.m.	9:39 a.m.	9:42 a.m.	9:46 a.m.	9:49 a.m.	
Sounding (ft)		42	44	45	33	23	
Temperature (°F)	Top	44	43	43	42	43	T. 43
	Bottom	43	43	43	42	42	B. 43
Color	Bottom	10		11		11	B. 11
pH	Top	6.2	6.2	6.4	6.4	6.4	T. 6.3
	Bottom	7.5	6.8	7.5	6.7	7.4	B. 7.2
Specific conductance (micromhos at 25°C)	Top	167	166	151	145	164	T. 159
	Bottom	165	159	151	138	148	B. 152
Dissolved oxygen	Top	7.8	8.3	9.0	9.3	9.2	T. 8.7
B. O. D. (5-day, 20°C)	Top	7.5	6.8	5.0	4.6	5.2	T. 5.8
Silica (SiO_2)	Bottom	6.5		7.2		6.6	B. 6.8
Iron (Fe)	Bottom	.01		.01		.01	B. .01
Calcium (Ca)	Bottom	14		13		13	B. 13
Magnesium (Mg)	Bottom	4.4		4.1		4.1	B. 4.2
Sodium (Na)	Bottom	8.8		7.2		6.1	B. 7.4
Bicarbonate (HCO_3)	Bottom	30		25		24	B. 26
Sulfate (SO_4)	Bottom	31		30		28	B. 30
Chloride (Cl)	Top	10	8.0	7.0	5.0	11	T. 8.2
	Bottom	10	8.0	7.5	8.0	8.5	B. 8.4
Fluoride (F)	Bottom	.1		.1		.1	B. .1
Nitrate (NO_3)	Bottom	6.3		5.1		5.5	B. 5.6
Dissolved solids	Bottom	108		105		100	B. 104
Hardness as $CaCO_3$	Bottom	53		49		49	B. 50
Suspended sediment	Top	Composite					T. 42

Table 10.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.--Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Philadelphia, Pa.-Camden, N. J. Bridge Date January 3, 1952 Sampling study No. 29
Weather Overcast Water discharge at Trenton (cfs) 30,500

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		9:00 a.m.	9:05 a.m.	9:10 a.m.	9:14 a.m.	9:16 a.m.	
Sounding (ft)		42	45	34	29	22	
Temperature (°F)	Top	38	38	38	38	38	T. 38
	Bottom	38	37	38	37	38	B. 38
Color	Bottom	5		5		7	B. 6
pH	Top	6.6	6.7	6.9	6.9	6.8	T. 6.8
	Bottom	7.0	7.0	7.2	7.1	7.4	B. 7.1
Specific conductance (micromhos at 25°C)	Top	155	142	135	133	160	T. 145
	Bottom	138	136	129	126	142	B. 134
Dissolved oxygen	Top	8.8	10.3	10.2	10.0	9.3	T. 9.7
B. O. D. (5-day, 20°C)	Top	4.3	8.9	2.2	2.9	3.3	T. 4.3
Silica (SiO_2)	Bottom	5.8		6.6		5.8	B. 6.1
Iron (Fe)	Bottom	.01		.01		.01	B. .01
Calcium (Ca)	Bottom	16		14		15	B. 15
Magnesium (Mg)	Bottom	5.5		5.1		4.9	B. 5.2
Sodium (Na)	Bottom	a3		a1.6		a2.9	B. a1.6
Bicarbonate (HCO_3)	Bottom	27		24		27	B. 26
Sulfate (SO_4)	Bottom	24		25		22	B. 24
Chloride (Cl)	Top	6.0	6.0	5.0	6.0	11	T. 6.8
	Bottom	7.0	5.0	6.0	5.0	9.5	B. 6.5
Fluoride (F)	Bottom	.1		.1		.1	B. .1
Nitrate (NO_3)	Bottom	7.3		6.3		6.4	B. 6.7
Dissolved solids	Bottom	92		86		88	B. 89
Hardness as $CaCO_3$	Bottom	62		56		58	B. 59
Suspended sediment	Top	Composite					T. 35

a Calculated Sodium and Potassium.

Location Philadelphia, Pa.-Camden, N. J. Bridge Date February 5, 1952 Sampling study No. 30
Weather Overcast Water discharge at Trenton (cfs) 39,800

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:00 n.	11:57 a.m.	11:55 a.m.	11:52 a.m.	11:50 a.m.	
Sounding (ft)		45	45	37	35	39	
Temperature (°F)	Top	39	39	39	40	39	T. 39
	Bottom	39	38	38	38	38	B. 38
Color	Bottom	7		7		7	B. 7
pH	Top	6.3	7.1	6.6	6.5	6.9	T. 6.7
	Bottom	6.7	7.8	6.6	7.7	6.5	B. 7.1
Specific conductance (micromhos at 25°C)	Top	132	120	120	126	119	T. 123
	Bottom	132	132	120	121	121	B. 125
Dissolved oxygen	Top	13.0	12.7	12.5	12.1	12.3	T. 12.5
B. O. D. (5-day, 20°C)	Top	6.4	4.6	4.5	4.3	5.2	T. 5.0
Silica (SiO_2)	Bottom	6.4		6.2		6.4	B. 6.3
Iron (Fe)	Bottom	.06		.06		.07	B. .06
Calcium (Ca)	Bottom	12		11		11	B. 11
Magnesium (Mg)	Bottom	4.5		4.6		4.5	B. 4.5
Sodium (Na)	Bottom	3.2		2.3		2.4	B. 2.6
Bicarbonate (HCO_3)	Bottom	25		25		23	B. 24
Sulfate (SO_4)	Bottom	24		22		22	B. 23
Chloride (Cl)	Top	5.0	4.0	4.0	5.0	4.0	T. 4.4
	Bottom	5.0	4.0	4.0	4.0	4.2	B. 4.2
Fluoride (F)	Bottom	.1		.1		.1	B. .1
Nitrate (NO_3)	Bottom	4.4		3.8		4.2	B. 4.1
Dissolved solids	Bottom	107		94		92	B. 98
Hardness as $CaCO_3$	Bottom	48		46		46	B. 47
Suspended sediment	Top	Composite					T. 35

Table 10.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.--Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Philadelphia, Pa.-Camden, N. J. Bridge Date March 5, 1952 Sampling study No. 31
Weather Slightly Cloudy Water discharge at Trenton (cfs) 9,730

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:10 p.m.	12:13 p.m.	12:16 p.m.	12:20 p.m.	12:23 p.m.	
Sounding (ft)		46	41	38	26	17	
Temperature (°F)	Top	41	41	41	40	40	T. 41
	Bottom	41	40	40	40	39	B. 40
Color	Bottom	3		4		4	B. 4
pH	Top	7.6	6.4	6.5	6.4	6.5	T. 6.7
	Bottom	7.8	7.5	7.9	7.5	7.7	B. 7.7
Specific conductance (micromhos at 25°C)	Top	191	186	177	170	190	T. 183
	Bottom	190	182	181	166	186	B. 181
Dissolved oxygen	Top	7.7	8.6	9.2	8.6	9.7	T. 8.7
B. O. D. (5-day, 20°C)	Top	5.9	5.6	1.5	3.5	6.3	T. 4.6
Silica (SiO_2)	Bottom	6.2		7.0		7.4	B. 6.9
Iron (Fe)	Bottom	.08		.08		.06	B. .07
Calcium (Ca)	Bottom	16		17		17	B. 17
Magnesium (Mg)	Bottom	5.4		5.2		5.4	B. 5.3
Sodium (Na)	Bottom	10		8.3		7.6	B. 8.6
Bicarbonate (HCO_3)	Bottom	38		44		32	B. 38
Sulfate (SO_4)	Bottom	33		30		31	B. 31
Chloride (Cl)	Top	10	10	8.0	8.0	12	T. 9.6
	Bottom	10	10	8.2	9.0	12	B. 9.8
Fluoride (F)	Bottom	.1		.1		.1	B. .1
Nitrate (NO_3)	Bottom	9.9		7.6		8.2	B. 8.6
Dissolved solids	Bottom	115		108		109	B. 111
Hardness as $CaCO_3$	Bottom	62		64		65	B. 64
Suspended sediment	Top	Composite					T. 29

Location Philadelphia, Pa.-Camden, N. J. Bridge Date April 2, 1952 Sampling study No. 32
Weather Clear Water discharge at Trenton (cfs) 22,700

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:22 p.m.	12:19 p.m.	12:16 p.m.	12:13 p.m.	12:10 p.m.	
Sounding (ft)		44	43	32	23	15	
Temperature (°F)	Top	50	49	50	51	51	T. 50
	Bottom	49	49	49	50	50	B. 49
Color	Bottom	6		6		7	B. 6
pH	Top	6.5	6.6	6.5	6.4	7.4	T. 6.7
	Bottom	7.0	7.7	6.9	7.7	6.7	B. 7.2
Specific conductance (micromhos at 25°C)	Top	107	96.5	96.0	100	106	T. 101
	Bottom	105	95.4	91.6	95.4	99.1	B. 97.3
Dissolved oxygen	Top	8.5	9.2	8.3	8.2	8.2	T. 8.5
B. O. D. (5-day, 20°C)	Top	4.6	1.7	1.0	2.1	2.2	T. 2.3
Silica (SiO_2)	Bottom	4.3		5.0		5.9	B. 5.1
Iron (Fe)	Bottom	.06		.05		.06	B. .06
Calcium (Ca)	Bottom	9.2		9.2		9.3	B. 9.2
Magnesium (Mg)	Bottom	2.9		2.7		3.0	B. 2.9
Sodium (Na)	Bottom	6.6		6.4		3.5	B. 5.5
Bicarbonate (HCO_3)	Bottom	22		21		18	B. 20
Sulfate (SO_4)	Bottom	21		22		20	B. 21
Chloride (Cl)	Top	5.0	4.0	4.0	4.0	4.0	T. 4.2
	Bottom	4.6	3.0	3.8	4.0	4.2	B. 3.9
Fluoride (F)	Bottom	.1		.1		.1	B. .1
Nitrate (NO_3)	Bottom	5.2		4.0		5.3	B. 4.8
Dissolved solids	Bottom	75		72		70	B. 72
Hardness as $CaCO_3$	Bottom	35		34		36	B. 35
Suspended sediment	Top	Composite					T. 24

Table 10. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Philadelphia, Pa.-Camden, N. J. Bridge Date May 5, 1952 Sampling study No. 33
Weather Cloudy Water discharge at Trenton (cfs) 18,700

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		8:53 a.m.	8:50 a.m.	8:46 a.m.	8:43 a.m.	8:40 a.m.	
Sounding (ft)		45	45	44	33	22	
Temperature (°F)	Top	58	58	58	58	58	T. 58
	Bottom	59	58	58	58	58	B. 58
Color	Bottom	7		7		5	B. 6
pH	Top	6.4	6.5	6.5	6.3	6.4	T. 6.4
	Bottom	6.9	6.3	6.8	6.3	7.0	B. 6.7
Specific conductance (micromhos at 25°C)	Top	125	117	114	115	113	T. 117
	Bottom	114	122	112	115	113	B. 115
Dissolved oxygen	Top	6.7	7.5	7.6	7.1	6.8	T. 7.1
B. O. D. (5-day, 20°C)	Top	1.6	1.6	1.8	2.4	3.1	T. 2.4
Silica (SiO_2)	Bottom	5.9		6.0		5.6	B. 5.8
Iron (Fe)	Bottom	.03		.06		.02	B. .04
Calcium (Ca)	Bottom	11		11		12	B. 11
Magnesium (Mg)	Bottom	3.6		3.6		3.8	B. 3.7
Sodium (Na)	Bottom	4.0		3.1		3.1	B. 3.4
Bicarbonate (HCO_3)	Bottom	25		18		32	B. 25
Sulfate (SO_4)	Bottom	22		26		21	B. 23
Chloride (Cl)	Top	6.0	4.0	3.0	4.0	3.0	T. 4.0
	Bottom	4.0	5.0	3.4	4.0	3.5	B. 4.0
Fluoride (F)	Bottom	.1		.1		.0	B. .1
Nitrate (NO_3)	Bottom	4.6		5.4		2.9	B. 4.3
Dissolved solids	Bottom	69		78		74	B. 74
Hardness as $CaCO_3$	Bottom	42		42		46	B. 43
Suspended sediment	Top	Composite					T. 32

Location Philadelphia, Pa.-Camden, N. J. Bridge Date June 4, 1952 Sampling study No. 34
Weather Cloudy Water discharge at Trenton (cfs) 28,600

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		8:32 a.m.	8:33 a.m.	8:35 a.m.	8:38 a.m.	8:40 a.m.	
Sounding (ft)		37	33	44	22	19	
Temperature (°F)	Top	67	66	67	66	66	T. 66
	Bottom	66	67	67	67	66	B. 67
Color	Bottom	12		12		12	B. 12
pH	Top	6.4	6.4	6.7	6.6	6.5	T. 6.5
	Bottom	6.9	6.5	6.9	6.5	6.8	B. 6.7
Specific conductance (micromhos at 25°C)	Top	118	118	112	106	110	T. 113
	Bottom	122	120	110	109	108	B. 114
Dissolved oxygen	Top	4.7	6.1	6.7	7.0	6.8	T. 6.3
B. O. D. (5-day, 20°C)	Top	1.0	3.5	2.2	1.9	2.6	T. 2.2
Silica (SiO_2)	Bottom	5.7		5.8		5.7	B. 5.7
Iron (Fe)	Bottom	.06		.04		.04	B. .05
Calcium (Ca)	Bottom	11		11		11	B. 11
Magnesium (Mg)	Bottom	3.9		3.7		3.6	B. 3.7
Sodium (Na)	Bottom	4.7		3.6		2.0	B. 3.4
Bicarbonate (HCO_3)	Bottom	28		26		20	B. 25
Sulfate (SO_4)	Bottom	22		20		20	B. 21
Chloride (Cl)	Top	4.0	4.0	4.0	3.0	4.0	T. 3.8
	Bottom	5.0	4.0	3.8	4.0	3.5	B. 4.1
Fluoride (F)	Bottom	.1		.1		.1	B. .1
Nitrate (NO_3)	Bottom	5.1		4.9		5.6	B. 5.2
Dissolved solids	Bottom	73		68		68	B. 70
Hardness as $CaCO_3$	Bottom	44		43		42	B. 43
Suspended sediment	Top	Composite					T. 36

Table 10. --*WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.* --*Continued*
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Philadelphia, Pa.-Camden, N. J. Bridge Date July 7, 1952 Sampling study No. 35
Weather Light Clouds Water discharge at Trenton (cfs) 3,370

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		8:50 a.m.	8:52 a.m.	8:54 a.m.	9:00 a.m.	9:02 a.m.	
Sounding (ft)		35	39	38	37	19	
Temperature (°F)	Top	80	80	79	79	79	T. 79
	Bottom	80	80	79	80	79	B. 80
Color	Bottom	8		6		8	B. 7
pH	Top	6.7	6.6	6.7	6.7	6.6	T. 6.7
	Bottom	7.4	6.8	7.4	6.8	7.3	B. 7.1
Specific conductance (micromhos at 25°C)	Top	245	202	198	194	210	T. 210
	Bottom	223	214	194	198	199	B. 206
Dissolved oxygen	Top	.5	1.0	1.0	1.1	1.5	T. 1.0
B. O. D. (5-day, 20°C)	Top	1.7	.0	.0	.0	.3	T. .4
Silica (SiO_2)	Bottom	6.0		6.4		6.7	B. 6.4
Iron (Fe)	Bottom	.02		.02		.03	B. .02
Calcium (Ca)	Bottom	19		18		17	B. 18
Magnesium (Mg)	Bottom	6.8		6.2		6.3	B. 6.4
Sodium (Na)	Bottom	13		9.0		10	B. 11
Bicarbonate (HCO_3)	Bottom	52		51		51	B. 51
Sulfate (SO_4)	Bottom	37		33		33	B. 34
Chloride (Cl)	Top	12	9.0	9.0	9.0	10	T. 9.8
	Bottom	12	10	8.2	9.0	8.8	B. 9.6
Fluoride (F)	Bottom	.1		.1		.1	B. .1
Nitrate (NO_3)	Bottom	11		3.0		6.2	B. 6.7
Dissolved solids	Bottom	134		116		119	B. 123
Hardness as $CaCO_3$	Bottom	75		70		68	B. 71
Suspended sediment	Top	Composite					T. 18

Location Philadelphia, Pa.-Camden, N. J. Bridge Date August 7, 1952 Sampling study No. 36
Weather Rain Water discharge at Trenton (cfs) 5,920

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		8:17 a.m.	8:19 a.m.	8:22 a.m.	8:25 a.m.	8:27 a.m.	
Sounding (ft)		39	41	41	28	19	
Temperature (°F)	Top	82	82	82	82	81	T. 82
	Bottom	82	82	82	81	81	B. 82
Color	Bottom	16		6		11	B. 11
pH	Top	6.5	6.6	6.6	6.6	6.6	T. 6.6
	Bottom	7.3	6.6	7.2	6.7	7.4	B. 7.0
Specific conductance (micromhos at 25°C)	Top	209	198	182	186	250	T. 205
	Bottom	209	190	173	188	228	B. 198
Dissolved oxygen	Top	2.0	1.0	1.2	1.2	.8	T. 1.2
B. O. D. (5-day, 20°C)	Top	4.9	.0	1.0	.7	3.7	T. 2.1
Silica (SiO_2)	Bottom	5.4		4.6		5.6	B. 5.2
Iron (Fe)	Bottom	.01		.02		.02	B. .02
Calcium (Ca)	Bottom	17		15		19	B. 17
Magnesium (Mg)	Bottom	5.8		6.0		6.1	B. 6.0
Sodium (Na)	Bottom	11		5.5		13	B. 9.8
Bicarbonate (HCO_3)	Bottom	41		33		35	B. 36
Sulfate (SO_4)	Bottom	37		29		34	B. 33
Chloride (Cl)	Top	12	10	10	10	18	T. 12
	Bottom	12	10	9.5	10	18	B. 12
Fluoride (F)	Bottom	.1		.1		.1	B. .1
Nitrate (NO_3)	Bottom	6.7		8.7		17	B. 11
Dissolved solids	Bottom	125		106		140	B. 124
Hardness as $CaCO_3$	Bottom	66		62		72	B. 67
Suspended sediment	Top	Composite					T. 33

Table 10. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Philadelphia, Pa.-Camden, N. J. Bridge Date September 3, 1952 Sampling study No. 37
Weather Cloudy Water discharge at Trenton (cfs) 32,000

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		8:52 a.m.	8:54 a.m.	8:58 a.m.	9:00 a.m.	9:03 a.m.		
Sounding (ft)		38	42	41	31	21		
Temperature (°F)	Top	78	76	76	76	76	T.	76
	Bottom	76	76	76	75	76	B.	76
Color	Bottom	1		2		4	B.	2
pH	Top	6.6	6.7	6.7	6.5	6.7	T.	6.6
	Bottom	7.6	6.7	7.5	6.7	7.4	B.	7.2
Specific conductance (micromhos at 25°C)	Top	204	182	182	178	186	T.	186
	Bottom	193	182	181	180	201	B.	187
Dissolved oxygen	Top	4.7	6.7	6.7	6.8	4.0	T.	5.8
B. O. D. (5-day, 20°C)	Top	3.3	1.1	1.0	.7	3.0	T.	1.8
Silica (SiO_2)	Bottom	2.0		2.1		2.9	B.	2.3
Iron (Fe)	Bottom	.01		.01		.01	B.	.01
Calcium (Ca)	Bottom	18		17		17	B.	17
Magnesium (Mg)	Bottom	8.0		7.9		7.9	B.	7.9
Sodium (Na)	Bottom	a4.8		a4.3		a6.1	B.	a5.1
Bicarbonate (HCO_3)	Bottom	50		47		38	B.	45
Sulfate (SO_4)	Bottom	32		28		33	B.	31
Chloride (Cl)	Top	11	8.5	8.5	8.0	12	T.	9.6
	Bottom	8.0	8.0	7.0	8.0	12	B.	8.6
Fluoride (F)	Bottom	.1		.2		.2	B.	.2
Nitrate (NO_3)	Bottom	2.9		7.8		6.4	B.	5.7
Dissolved solids	Bottom	116		108		118	B.	114
Hardness as $CaCO_3$	Bottom	78		75		75	B.	76
Suspended sediment	Top	Composite					T.	13

a Calculated Sodium and Potassium.

Location Philadelphia, Pa.-Camden, N. J. Bridge Date October 6, 1952 Sampling study No. 38
Weather Clear Water discharge at Trenton (cfs) 4,800

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		10:32 a.m.	10:30 a.m.	10:21 a.m.	10:25 a.m.	10:28 a.m.		
Sounding (ft)		39	39	41	29	29		
Temperature (°F)	Top	68	67	67	67	67	T.	67
	Bottom	67	67	66	67	66	B.	67
Color	Bottom	5		8		5	B.	6
pH	Top	6.7	6.6	6.6	6.5	6.6	T.	6.6
	Bottom	7.0	6.6	7.7	6.5	7.7	B.	7.1
Specific conductance (micromhos at 25°C)	Top	237	215	206	210	224	T.	218
	Bottom	227	218	204	207	214	B.	214
Dissolved oxygen	Top	1.6	2.0	3.6	2.6	2.6	T.	2.5
B. O. D. (5-day, 20°C)	Top	2.6	2.4	1.8	.8	1.2	T.	1.8
Silica (SiO_2)	Bottom	2.7		3.8		3.2	B.	3.2
Iron (Fe)	Bottom	.03		.03		.04	B.	.03
Calcium (Ca)	Bottom	18		17		18	B.	18
Magnesium (Mg)	Bottom	6.9		6.8		6.6	B.	6.8
Sodium (Na)	Bottom	11		9.6		10	B.	10
Bicarbonate (HCO_3)	Bottom	43		42		42	B.	42
Sulfate (SO_4)	Bottom	35		32		34	B.	34
Chloride (Cl)	Top	14	12	10	11	13	T.	12
	Bottom	14	11	11	10	12	B.	12
Fluoride (F)	Bottom	.1		.1		.1	B.	.1
Nitrate (NO_3)	Bottom	11		17		12	B.	13
Dissolved solids	Bottom	137		124		128	B.	130
Hardness as $CaCO_3$	Bottom	73		70		72	B.	72
Suspended sediment	Top	Composite					T.	9

Table 10. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Philadelphia, Pa.-Camden, N. J. Bridge Date November 6, 1952 Sampling study No. 39
Weather Clear Water discharge at Trenton (cfs) 3,130

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		9:26 a.m.	9:31 a.m.	9:35 a.m.	9:38 a.m.	9:43 a.m.		
Sounding (ft)		46	40	43	30	21		
Temperature (°F)	Top	56	54	54	53	53	T.	54
	Bottom	55	54	53	53	52	B.	53
Color	Bottom	5		6		8	B.	6
pH	Top	6.3	6.5	6.4	6.4	6.5	T.	6.4
	Bottom	7.5	6.5	7.0	6.4	7.4	B.	7.0
Specific conductance (micromhos at 25°C)	Top	324	304	301	309	315	T.	311
	Bottom	315	309	301	309	343	B.	315
Dissolved oxygen	Top	2.0	1.3	1.6	1.3	1.7	T.	1.6
B. O. D. (5-day, 20°C)	Top	8.4	8.0	8.2	2.7	8.5	T.	7.2
Silica (SiO_2)	Bottom	2.1		2.2		3.3	B.	2.5
Iron (Fe)	Bottom	.03		.03		.04	B.	.03
Calcium (Ca)	Bottom	22		22		26	B.	23
Magnesium (Mg)	Bottom	9.7		8.9		9.0	B.	9.2
Sodium (Na)	Bottom	20		19		20	B.	20
Bicarbonate (HCO_3)	Bottom	48		48		52	B.	49
Sulfate (SO_4)	Bottom	56		54		57	B.	56
Chloride (Cl)	Top	22	20	20	21	22	T.	21
	Bottom	22	20	20	20	30	B.	22
Fluoride (F)	Bottom	.1		.1		.1	B.	.1
Nitrate (NO_3)	Bottom	11		18		17	B.	15
Dissolved solids	Bottom	187		189		207	B.	194
Hardness as $CaCO_3$	Bottom	95		92		102	B.	96
Suspended sediment	Top	Composite					T.	10

Location Philadelphia, Pa.-Camden, N. J. Bridge Date December 4, 1952 Sampling study No. 40
Weather Clear Water discharge at Trenton (cfs) 10,300

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		9:58 a.m.	10:01 a.m.	10:04 a.m.	10:07 a.m.	10:10 a.m.		
Sounding (ft)		42	45	42	28	24		
Temperature (°F)	Top	45	43	42	42	42	T.	43
	Bottom	44	44	42	42	42	B.	43
Color	Bottom	5		8		5	B.	6
pH	Top	6.2	6.4	6.4	6.4	6.3	T.	6.3
	Bottom	6.5	6.3	6.9	6.4	6.6	B.	6.5
Specific conductance (micromhos at 25°C)	Top	163	140	124	127	129	T.	137
	Bottom	163	141	124	126	126	B.	136
Dissolved oxygen	Top	7.8	9.5	10.5	11.1	9.3	T.	9.6
B. O. D. (5-day, 20°C)	Top	7.7	5.4	3.1	3.8	3.8	T.	4.8
Silica (SiO_2)	Bottom	5.0		4.7		4.9	B.	4.9
Iron (Fe)	Bottom	.06		.09		.09	B.	.08
Calcium (Ca)	Bottom	11		11		11	B.	11
Magnesium (Mg)	Bottom	5.2		4.3		4.3	B.	4.6
Sodium (Na)	Bottom	9.2		4.4		4.4	B.	6.0
Bicarbonate (HCO_3)	Bottom	22		21		18	B.	20
Sulfate (SO_4)	Bottom	29		29		24	B.	27
Chloride (Cl)	Top	9.5	7.5	6.0	6.5	6.5	T.	7.2
	Bottom	10	7.0	6.0	6.0	6.0	B.	7.0
Fluoride (F)	Bottom	.1		.1		.1	B.	.1
Nitrate (NO_3)	Bottom	10		6.5		8.0	B.	8.2
Dissolved solids	Bottom	105		82		85	B.	91
Hardness as $CaCO_3$	Bottom	49		45		45	B.	46
Suspended sediment	Top	Composite					T.	28

Table 11. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Wharton Street, Philadelphia, Pa. Date August 2, 1949 Sampling study No. 1
Weather Cloudy Water discharge at Trenton (cfs) 2,940

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		--	--	10:45 a.m.	--	--	
Sounding (ft)			45	43	38		
Temperature (°F)	Top	84	84	83	84	84	T. 84
	Bottom		84	84	84		B. 84
pH	Top	5.9	6.0	5.9	6.1	6.0	T. 6.0
	Bottom		6.0	5.9	5.8		B. 5.9
Specific conductance (micromhos at 25°C)	Top	283	284	283	280	280	T. 282
	Bottom		285	286	277		B. 283
Dissolved oxygen	Top	.0	.0	.0	.0	.1	T. .0
B. O. D. (5-day, 20°C)	Top	20.0	14.0	17.0	16.0	18.0	T. 17.0
Chloride (Cl)	Top	18	18	17	17	17	T. 17
	Bottom		17	18	18		B. 18
Suspended sediment	Top	Composite					T. —

Location Wharton Street, Philadelphia, Pa. Date September 7, 1949 Sampling study No. 2
Weather Slight Rain Water discharge at Trenton (cfs) 3,810

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		--	--	2:00 p.m.	--	--	
Sounding (ft)			43	45	41		
Temperature (°F)	Top	78	78	77	78	77	T. 78
	Bottom		77	77	76		B. 77
pH	Top	6.5	6.5	6.2	6.3	6.4	T. 6.4
	Bottom		6.6	6.5	6.7		B. 6.6
Specific conductance (micromhos at 25°C)	Top	366	423	428	446	420	T. 417
	Bottom		401	426	436		B. 421
Dissolved oxygen	Top	.3	.7	.5	.8	1.0	T. .7
B. O. D. (5-day, 20°C)	Top	10.0	16.2	12.0	12.3	10.5	T. 12.2
Chloride (Cl)	Top	35	47	45	51	45	T. 44
	Bottom		43	48	50		B. 47
Suspended sediment	Top	Composite					T. 28

Location Wharton Street, Philadelphia, Pa. Date October 5, 1949 Sampling study No. 3
Weather Occasional Rain Water discharge at Trenton (cfs) 3,280

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		--	--	9:30 a.m.	--	--	
Sounding (ft)			45	40	36		
Temperature (°F)	Top	69	70	69	70	69	T. 69
	Bottom		70	69	69		B. 69
pH	Top	6.7	6.6	6.6	6.5	6.6	T. 6.6
	Bottom		6.7	6.6	6.6		B. 6.6
Specific conductance (micromhos at 25°C)	Top	381	386	362	363	389	T. 376
	Bottom		357	353	367		B. 359
Dissolved oxygen	Top	1.5	1.5	1.7	1.6	1.3	T. 1.5
B. O. D. (5-day, 20°C)	Top	8.3	4.3	6.7	3.4	5.3	T. 5.6
Chloride (Cl)	Top	35	36	32	34	37	T. 35
	Bottom		33	32	36		B. 34
Suspended sediment	Top	Composite					T. 28

Location Wharton Street, Philadelphia, Pa. Date November 2, 1949 Sampling study No. 4
Weather Clear Water discharge at Trenton (cfs) 3,430

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		--	--	9:30 a.m.	--	--	
Sounding (ft)			43	44	38		
Temperature (°F)	Top	62	62	60	60	60	T. 61
	Bottom		60	60	60		B. 60
pH	Top	6.6	6.6	6.5	6.6	6.6	T. 6.6
	Bottom		6.6	6.6	6.6		B. 6.6
Specific conductance (micromhos at 25°C)	Top	461	523	497	477	457	T. 483
	Bottom		509	493	468		B. 490
Dissolved oxygen	Top	1.0	1.4	1.3	1.0	1.6	T. 1.3
B. O. D. (5-day, 20°C)	Top	15.3	11.7	11.7	8.1	10.5	T. 11.5
Chloride (Cl)	Top	59	74	69	65	60	T. 65
	Bottom		72	71	64		B. 69
Suspended sediment	Top	Composite					T. 32

Table 11. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Wharton Street, Philadelphia, Pa. Date December 2, 1949 Sampling study No. 5
Weather Occasional Rain Water discharge at Trenton (cfs) 4,750

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		—	—	10:00 a.m.	—	—	
Sounding (ft)			45	41	40		
Temperature (°F)	Top	50	49	45	45	45	T. 47
	Bottom		48	44	45		B. 46
pH	Top	6.2	6.2	6.3	6.3	6.3	T. 6.3
	Bottom		6.2	6.2	6.3		B. 6.2
Specific conductance (micromhos at 25°C)	Top	252	271	262	266	262	T. 263
	Bottom		279	261	265		B. 268
Dissolved oxygen	Top	3.4	3.2	2.8	2.1	1.2	T. 2.5
B. O. D. (5-day, 20°C)	Top	3.5	2.5	4.0	1.5	3.5	T. 3.0
Chloride (Cl)	Top	20	22	22	22	20	T. 21
	Bottom		25	21	21		B. 22
Suspended sediment	Top	Composite					T. 26

Location Wharton Street, Philadelphia, Pa. Date January 5, 1950 Sampling study No. 6
Weather Cloudy Water discharge at Trenton (cfs) 11,100

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		9:30 a.m.	9:32 a.m.	9:34 a.m.	9:36 a.m.	9:38 a.m.	
Sounding (ft)			38	35	30		
Temperature (°F)	Top	46	46	46	44	44	T. 45
	Bottom		43	43	43		B. 43
pH	Top	6.4	6.5	6.6	6.5	6.4	T. 6.5
	Bottom		6.6	6.5	6.6		B. 6.6
Specific conductance (micromhos at 25°C)	Top	139	117	105	107	123	T. 118
	Bottom		115	105	108		B. 109
Dissolved oxygen	Top	8.2	11.0	11.0	11.0	9.8	T. 10.2
B. O. D. (5-day, 20°C)	Top	8.5	6.0	4.0	3.5	5.5	T. 5.5
Chloride (Cl)	Top	10	6.0	6.0	7.0	7.0	T. 7.2
	Bottom		4.0	6.0	6.0		B. 5.3
Suspended sediment	Top	Composite					T. 36

Location Wharton Street, Philadelphia, Pa. Date February 3, 1950 Sampling study No. 7
Weather Clear Water discharge at Trenton (cfs) 14,300

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		9:45 a.m.	9:50 a.m.	9:52 a.m.	9:55 a.m.	10:00 a.m.	
Sounding (ft)			41	38	34		
Temperature (°F)	Top	43	41	39	39	39	T. 40
	Bottom		41	40	40		B. 40
pH	Top	6.5	6.7	6.8	6.8	6.7	T. 6.7
	Bottom		6.6	6.7	6.7		B. 6.7
Specific conductance (micromhos at 25°C)	Top	151	132	118	111	126	T. 128
	Bottom		136	119	113		B. 123
Dissolved oxygen	Top	7.5	9.5	10.0	10.7	10.0	T. 9.5
B. O. D. (5-day, 20°C)	Top	7.5	5.0	3.0	4.0	6.5	T. 5.2
Chloride (Cl)	Top	10	9.0	8.0	7.0	8.0	T. 8.4
	Bottom		10	6.0	7.0		B. 7.7
Suspended sediment	Top	Composite					T. 14

Location Wharton Street, Philadelphia, Pa. Date March 7, 1950 Sampling study No. 8
Weather Cloudy Water discharge at Trenton (cfs) 7,260

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		3:42 p.m.	3:40 p.m.	3:35 p.m.	3:34 p.m.	3:30 p.m.	
Sounding (ft)			47	43	41		
Temperature (°F)	Top	37	37	37	37	37	T. 37
	Bottom		37	36	37		B. 37
pH	Top	6.6	6.6	6.6	6.5	6.5	T. 6.6
	Bottom		6.5	6.5	6.5		B. 6.5
Specific conductance (micromhos at 25°C)	Top	189	187	186	188	184	T. 187
	Bottom		190	187	188		B. 188
Dissolved oxygen	Top	7.8	8.0	8.5	8.3	8.4	T. 8.2
B. O. D. (5-day, 20°C)	Top	8.4	5.1	6.1	4.4	6.0	T. 6.0
Chloride (Cl)	Top	11	10	10	10	10	T. 10
	Bottom		11	10	10		B. 10
Suspended sediment	Top	Composite					T. 36

Table 11. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Wharton Street, Philadelphia, Pa. Date April 3, 1950 Sampling study No. 9
Weather Cloudy Water discharge at Trenton (cfs) 32,300

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		3:48 p.m.	3:45 p.m.	3:43 p.m.	3:40 p.m.	3:37 p.m.	
Sounding (ft)			49	40	39		
Temperature (°F)	Top	44	44	44	44	45	T. 44
	Bottom		44	43	44		B. 44
pH	Top	6.6	6.5	6.5	6.4	6.4	T. 6.5
	Bottom		6.6	6.5	6.4		B. 6.5
Specific conductance (micromhos at 25°C)	Top	83.9	83.0	79.8	78.6	79.4	T. 80.9
	Bottom		81.2	77.9	78.1		B. 79.1
Dissolved oxygen	Top	10.8	10.5	11.0	10.9	10.6	T. 10.8
B. O. D. (5-day, 20°C)	Top	4.6	3.5	4.4	3.1	4.6	T. 4.0
Chloride (Cl)	Top	4.0	4.0	4.0	4.0	4.0	T. 4.0
	Bottom		6.0	4.0	4.0		B. 4.7
Suspended sediment	Top	Composite					T. 23

Location Wharton Street, Philadelphia, Pa. Date May 3, 1950 Sampling study No. 10
Weather Cloudy Water discharge at Trenton (cfs) 17,000

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		4:40 p.m.	4:35 p.m.	4:32 p.m.	4:28 p.m.	4:25 p.m.	
Sounding (ft)			45	41	37		
Temperature (°F)	Top	55	55	55	55	55	T. 55
	Bottom		54	55	54		B. 54
pH	Top	6.4	6.5	6.5	6.5	6.5	T. 6.5
	Bottom		6.5	6.4	6.4		B. 6.4
Specific conductance (micromhos at 25°C)	Top	140	135	136	135	134	T. 136
	Bottom		135	136	133		B. 135
Dissolved oxygen	Top	3.8	4.4	4.8	4.9	5.0	T. 4.6
B. O. D. (5-day, 20°C)	Top	8.3	7.3	7.5	7.0	4.5	T. 6.9
Chloride (Cl)	Top	8.0	7.0	7.0	7.0	8.0	T. 7.4
	Bottom		7.0	6.0	6.0		B. 6.3
Suspended sediment	Top	Composite					T. 11

Location Wharton Street, Philadelphia, Pa. Date June 5, 1950 Sampling study No. 11
Weather Clear Water discharge at Trenton (cfs) 18,500

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		8:34 a.m.	8:43 a.m.	8:47 a.m.	8:50 a.m.	8:52 a.m.	
Sounding (ft)			45	46	39		
Temperature (°F)	Top	67	68	67	67	67	T. 67
	Bottom		67	67	67		B. 67
pH	Top	6.3	6.4	6.4	6.4	6.4	T. 6.4
	Bottom		6.2	6.3	6.4		B. 6.3
Specific conductance (micromhos at 25°C)	Top	134	129	129	125	128	T. 129
	Bottom		132	129	125		B. 129
Dissolved oxygen	Top	2.7	2.7	3.3	3.7	4.2	T. 3.3
B. O. D. (5-day, 20°C)	Top	2.2	1.0	.4	1.4	2.2	T. 1.4
Chloride (Cl)	Top	7.0	7.0	7.0	8.0	8.0	T. 7.4
	Bottom		6.0	6.0	6.0		B. 6.0
Suspended sediment	Top	Composite					T. 22

Location Wharton Street, Philadelphia, Pa. Date July 5, 1950 Sampling study No. 12
Weather Cloudy Water discharge at Trenton (cfs) 5,630

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		8:30 a.m.	8:35 a.m.	8:40 a.m.	8:45 a.m.	8:50 a.m.	
Sounding (ft)			44	39	37		
Temperature (°F)	Top	79	79	78	78	78	T. 78
	Bottom		78	78	78		B. 78
pH	Top	6.4	6.4	6.4	6.4	6.4	T. 6.4
	Bottom		6.3	6.4	6.4		B. 6.4
Specific conductance (micromhos at 25°C)	Top	193	193	193	188	182	T. 190
	Bottom		193	192	191		B. 192
Dissolved oxygen	Top	.0	.5	.8	1.0	1.0	T. .7
B. O. D. (5-day, 20°C)	Top	.1	5.8	5.9	5.3	5.9	T. 4.6
Chloride (Cl)	Top	12	12	13	12	12	T. 12
	Bottom		12	12	12		B. 12
Suspended sediment	Top	Composite					T. 25

Table 11. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Wharton Street, Philadelphia, Pa. Date August 1, 1950 Sampling study No. 13
Weather Light Rain Water discharge at Trenton (cfs) 4,710

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		8:30 a.m.	8:35 a.m.	8:40 a.m.	8:42 a.m.	8:45 a.m.	
Sounding (ft)			43	38	33		
Temperature (°F)	Top	80	80	80	80	80	T. 80
	Bottom		80	80	80		B. 80
pH	Top	6.2	6.3	6.2	6.1	6.2	T. 6.2
	Bottom		6.4	6.3	6.3		B. 6.3
Specific conductance (micromhos at 25°C)	Top	199	205	203	192	217	T. 203
	Bottom		211	207	201		B. 206
Dissolved oxygen	Top	.2	.3	.3	.4	.4	T. .3
B. O. D. (5-day, 20°C)	Top	8.9	5.4	2.7	1.0	1.9	T. 4.0
Chloride (Cl)	Top	12	10	12	11	12	T. 11
	Bottom		12	12	11		B. 12
Suspended sediment	Top	Composite					T. 28

Location Wharton Street, Philadelphia, Pa. Date September 5, 1950 Sampling study No. 14
Weather Clear Water discharge at Trenton (cfs) 5,800

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		8:55 a.m.	9:00 a.m.	9:05 a.m.	9:10 a.m.	9:15 a.m.	
Sounding (ft)			46	42	38		
Temperature (°F)	Top	78	78	78	78	78	T. 78
	Bottom		77	77	78		B. 77
pH	Top	6.4	6.4	6.4	6.4	6.4	T. 6.4
	Bottom		6.4	6.4	6.4		B. 6.4
Specific conductance (micromhos at 25°C)	Top	255	255	253	251	245	T. 252
	Bottom		255	251	249		B. 252
Dissolved oxygen	Top	.0	.0	.0	.0	.0	T. .0
B. O. D. (5-day, 20°C)	Top	--	7.5	8.7	7.5	6.9	T. 7.6
Chloride (Cl)	Top	16	16	16	16	15	T. 16
	Bottom		16	16	16		B. 16
Suspended sediment	Top	Composite					T. 19

Location Wharton Street, Philadelphia, Pa. Date October 2, 1950 Sampling study No. 15
Weather Misty Water discharge at Trenton (cfs) 3,020

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		3:15 p.m.	3:10 p.m.	3:05 p.m.	3:00 p.m.	2:55 p.m.	
Sounding (ft)			46	42	37		
Temperature (°F)	Top	69	69	69	69	69	T. 69
	Bottom		69	69	69		B. 69
pH	Top	6.5	6.5	6.5	6.3	6.1	T. 6.4
	Bottom		6.4	6.5	6.5		B. 6.5
Specific conductance (micromhos at 25°C)	Top	258	263	258	254	256	T. 258
	Bottom		260	258	263		B. 260
Dissolved oxygen	Top	.0	.0	.0	.2	.0	T. .0
B. O. D. (5-day, 20°C)	Top	6.9	8.7	7.8	12.2	11.1	T. 9.3
Chloride (Cl)	Top	14	14	14	14	14	T. 14
	Bottom		14	14	14		B. 14
Suspended sediment	Top	Composite					T. 34

Location Wharton Street, Philadelphia, Pa. Date November 1, 1950 Sampling study No. 16
Weather Clear Water discharge at Trenton (cfs) 2,600

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		3:37 p.m.	3:35 p.m.	3:33 p.m.	3:31 p.m.	3:29 p.m.	
Sounding (ft)			46	42	40		
Temperature (°F)	Top	65	65	65	64	65	T. 65
	Bottom		66	65	66		B. 66
pH	Top	6.6	6.5	6.6	6.5	6.5	T. 6.5
	Bottom		6.5	6.2	6.2		B. 6.3
Specific conductance (micromhos at 25°C)	Top	298	310	308	304	307	T. 305
	Bottom		308	295	298		B. 300
Dissolved oxygen	Top	.0	.0	.0	.0	.0	T. .0
B. O. D. (5-day, 20°C)	Top	12.0	10.5	9.3	9.1	7.8	T. 9.5
Chloride (Cl)	Top	20	21	21	20	20	T. 20
	Bottom		21	21	21		B. 21
Suspended sediment	Top	Composite					T. 51

Table 11. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Wharton Street, Philadelphia, Pa. Date December 5, 1950 Sampling study No. 17
Weather Clear Water discharge at Trenton (cfs) 83,500

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		9:40 a.m.	9:43 a.m.	9:46 a.m.	9:49 a.m.	10:02 a.m.	
Sounding (ft)			44	42	36		
Temperature (°F)	Top	42	42	42	41	41	T. 42
	Bottom		42	41	41		B. 41
pH	Top	6.1	6.2	6.2	6.2	6.4	T. 6.2
	Bottom		6.2	6.2	6.2		B. 6.2
Specific conductance (micromhos at 25°C)	Top	120	118	116	112	118	T. 117
	Bottom		119	113	112		B. 115
Dissolved oxygen	Top	11.9	11.3	11.2	12.4	10.8	T. 11.5
B. O. D. (5-day, 20°C)	Top	9.8	8.8	6.3	6.2	5.3	T. 7.3
Chloride (Cl)	Top	6.0	6.0	4.0	4.0	6.0	T. 5.2
	Bottom		6.0	4.0	4.0		B. 4.7
Suspended sediment	Top	Composite					T. 28

Location Wharton Street, Philadelphia, Pa. Date January 2, 1951 Sampling study No. 18
Weather Overcast Water discharge at Trenton (cfs) 6,670

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		9:45 a.m.	9:50 a.m.	9:55 a.m.	10:00 a.m.	10:05 a.m.	
Sounding (ft)			45	43	38		
Temperature (°F)	Top	36	36	36	35	35	T. 36
	Bottom		36	36	35		B. 36
pH	Top	6.4	6.4	6.4	6.5	6.4	T. 6.4
	Bottom		6.3	6.4	6.3		B. 6.3
Specific conductance (micromhos at 25°C)	Top	186	194	196	182	181	T. 188
	Bottom		196	203	194		B. 198
Dissolved oxygen	Top	6.5	6.7	6.4	6.5	6.4	T. 6.5
B. O. D. (5-day, 20°C)	Top	b7	b7	b7	5.1	4.3	T. b6.1
Chloride (Cl)	Top	8.0	8.0	8.0	8.0	8.0	T. 8.0
	Bottom		8.0	10	9.0		B. 9.0
Suspended sediment	Top	Composite					T. 17

b Exceeded this value.

Location Wharton Street, Philadelphia, Pa. Date March 1, 1951 Sampling study No. 19
Weather Rain Water discharge at Trenton (cfs) 21,000

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:35 a.m.	10:40 a.m.	10:45 a.m.	10:50 a.m.	10:53 a.m.	
Sounding (ft)			46	41	41		
Temperature (°F)	Top	43	42	41	40	40	T. 41
	Bottom		41	40	40		B. 40
pH	Top	6.5	6.5	6.5	6.5	6.5	T. 6.5
	Bottom		6.4	6.4	6.5		B. 6.4
Specific conductance (micromhos at 25°C)	Top	126	115	116	113	108	T. 116
	Bottom		118	116	114		B. 116
Dissolved oxygen	Top	9.7	10.9	10.1	11.6	11.5	T. 10.8
B. O. D. (5-day, 20°C)	Top	b10	6.6	7.6	6.2	5.4	T. b7.2
Chloride (Cl)	Top	7.0	5.0	6.0	5.0	5.0	T. 5.6
	Bottom		5.0	5.0	6.0		B. 5.3
Suspended sediment	Top	Composite					T. 16

b Exceeded this value.

Location Wharton Street, Philadelphia, Pa. Date April 3, 1951 Sampling study No. 20
Weather Overcast Water discharge at Trenton (cfs) 53,100

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		9:30 a.m.	9:33 a.m.	9:35 a.m.	9:38 a.m.	9:41 a.m.	
Sounding (ft)			46	44	41		
Temperature (°F)	Top	46	46	45	45	45	T. 45
	Bottom		45	45	45		B. 45
pH	Top	6.7	6.8	6.8	6.7	6.6	T. 6.7
	Bottom		6.6	6.8	6.8		B. 6.7
Specific conductance (micromhos at 25°C)	Top	78.2	71.0	66.0	66.0	67.6	T. 69.8
	Bottom		69.6	68.8	66.6		B. 68.3
Dissolved oxygen	Top	10.5	10.4	11.0	10.9	11.4	T. 10.8
B. O. D. (5-day, 20°C)	Top	1.9	6.0	3.9	3.1	4.0	T. 3.8
Chloride (Cl)	Top	3.0	3.0	3.0	3.0	3.0	T. 3.0
	Bottom		3.0	3.0	3.0		B. 3.0
Suspended sediment	Top	Composite					T. 80

Table 11.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.--Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Wharton Street, Philadelphia, Pa. Date May 2, 1951 Sampling study No. 21
Weather Clear Water discharge at Trenton (cfs) 12,400

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		8:15 a.m.	8:10 a.m.	8:05 a.m.	8:00 a.m.	7:55 a.m.	
Sounding (ft)			42	39	38		
Temperature (°F)	Top	63	63	64	63	63	T. 63
	Bottom		63	62	62		B. 62
pH	Top	6.7	6.8	6.7	6.8	6.8	T. 6.8
	Bottom		6.8	6.8	6.8		B. 6.8
Specific conductance (micromhos at 25°C)	Top	139	132	145	131	132	T. 136
	Bottom		135	127	131		B. 131
Dissolved oxygen	Top	4.6	5.5	4.6	5.1	5.4	T. 5.0
B. O. D. (5-day, 20°C)	Top	5.4	3.1	4.6	2.5	3.6	T. 3.8
Chloride (Cl)	Top	7.0	7.0	9.0	6.0	6.0	T. 7.0
	Bottom		8.0	7.0	7.0		B. 7.3
Suspended sediment	Top	Composite					T. 12

Location Wharton Street, Philadelphia, Pa. Date June 8, 1951 Sampling study No. 22
Weather Rain Water discharge at Trenton (cfs) 7,520

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		8:27 a.m.	8:29 a.m.	8:38 a.m.	8:35 a.m.	8:33 a.m.	
Sounding (ft)			41	39	36		
Temperature (°F)	Top	73	73	72	72	72	T. 72
	Bottom		72	72	72		B. 72
pH	Top	6.5	6.6	6.6	6.6	6.6	T. 6.6
	Bottom		6.5	6.6	6.6		B. 6.6
Specific conductance (micromhos at 25°C)	Top	195	190	183	178	183	T. 186
	Bottom		190	184	180		B. 185
Dissolved oxygen	Top	.6	.7	1.2	1.7	.7	T. 1.0
B. O. D. (5-day, 20°C)	Top	7.8	6.8	4.9	3.0	2.3	T. 5.0
Chloride (Cl)	Top	11	10	10	10	10	T. 10
	Bottom		10	10	10		B. 10
Suspended sediment	Top	Composite					T. 35

Location Wharton Street, Philadelphia, Pa. Date July 6, 1951 Sampling study No. 23
Weather Clear Water discharge at Trenton (cfs) 9,250

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		1:18 p.m.	1:20 p.m.	1:22 p.m.	1:24 p.m.	1:29 p.m.	
Sounding (ft)			45	41	38		
Temperature (°F)	Top	78	78	78	78	77	T. 78
	Bottom		78	78	78		B. 78
pH	Top	6.7	6.7	6.7	6.7	6.8	T. 6.7
	Bottom		6.7	6.7	6.7		B. 6.7
Specific conductance (micromhos at 25°C)	Top	187	183	182	182	189	T. 185
	Bottom		181	182	183		B. 182
Dissolved oxygen	Top	1.7	2.1	2.4	2.4	2.6	T. 2.2
B. O. D. (5-day, 20°C)	Top	.8	.0	.2	.3	.1	T. .3
Chloride (Cl)	Top	9.0	9.0	9.0	9.0	9.0	T. 9.0
	Bottom		9.0	9.0	9.0		B. 9.0
Suspended sediment	Top	Composite					T. 16

Location Wharton Street, Philadelphia, Pa. Date August 2, 1951 Sampling study No. 24
Weather Clear Water discharge at Trenton (cfs) 10,300

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		1:48 p.m.	1:46 p.m.	1:44 p.m.	1:42 p.m.	1:40 p.m.	
Sounding (ft)			46	43	42		
Temperature (°F)	Top	80	80	80	80	80	T. 80
	Bottom		81	81	81		B. 81
pH	Top	6.6	6.7	7.1	6.8	6.8	T. 6.8
	Bottom		6.8	6.8	6.7		B. 6.8
Specific conductance (micromhos at 25°C)	Top	200	199	230	197	195	T. 204
	Bottom		193	197	196		B. 195
Dissolved oxygen	Top	3.0	2.3	2.4	3.0	2.8	T. 2.7
B. O. D. (5-day, 20°C)	Top	.9	.3	.9	1.2	1.2	T. .9
Chloride (Cl)	Top	10	10	11	10	10	T. 10
	Bottom		10	10	10		B. 10
Suspended sediment	Top	Composite					T. 11

Table 11. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Wharton Street, Philadelphia, Pa. Date September 5, 1951 Sampling study No. 25
Weather Cloudy Water discharge at Trenton (cfs) 3,680

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		1:04 p.m.	1:06 p.m.	1:08 p.m.	1:10 p.m.	1:12 p.m.	
Sounding (ft)			45	42	40		
Temperature (°F)	Top	78	78	78	78	78	T. 78
	Bottom		78	78	78		B. 78
pH	Top	6.5	6.5	6.6	6.6	6.4	T. 6.5
	Bottom		6.5	6.6	6.5		B. 6.5
Specific conductance (micromhos at 25°C)	Top	259	254	259	259	258	T. 258
	Bottom		254	258	273		B. 262
Dissolved oxygen	Top	.3	.3	.3	.3	.4	T. .3
B. O. D. (5-day, 20°C)	Top	9.2	9.8	9.1	9.1	8.1	T. 9.1
Chloride (Cl)	Top	12	12	12	12	12	T. 12
	Bottom		12	12	14		B. 13
Suspended sediment	Top	Composite					T. 36

Location Wharton Street, Philadelphia, Pa. Date October 1, 1951 Sampling study No. 26
Weather Clear Water discharge at Trenton (cfs) 3,040

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		3:44 p.m.	3:42 p.m.	3:40 p.m.	3:39 p.m.	3:38 p.m.	
Sounding (ft)			46	41	38		
Temperature (°F)	Top	72	72	72	72	72	T. 72
	Bottom		72	72	72		B. 72
pH	Top	7.8	6.5	6.5	6.4	6.5	T. 6.7
	Bottom		6.4	6.5	6.6		B. 6.5
Specific conductance (micromhos at 25°C)	Top	306	330	336	330	333	T. 327
	Bottom		327	351	355		B. 344
Dissolved oxygen	Top	.7	1.3	1.2	.4	.9	T. .9
B. O. D. (5-day, 20°C)	Top	7.2	4.8	5.1	2.1	3.6	T. 4.6
Chloride (Cl)	Top	18	22	22	22	22	T. 21
	Bottom		22	25	25		B. 24
Suspended sediment	Top	Composite					T. 28

Location Wharton Street, Philadelphia, Pa. Date November 5, 1951 Sampling study No. 27
Weather Clear Water discharge at Trenton (cfs) 39,800

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		3:15 p.m.	3:18 p.m.	3:21 p.m.	3:24 p.m.	3:27 p.m.	
Sounding (ft)			47	42	39		
Temperature (°F)	Top	48	48	48	47	47	T. 48
	Bottom		47	48	47		B. 47
pH	Top	6.3	6.5	6.5	6.5	6.6	T. 6.5
	Bottom		6.3	6.5	6.5		B. 6.4
Specific conductance (micromhos at 25°C)	Top	161	151	149	146	148	T. 151
	Bottom		164	148	146		B. 153
Dissolved oxygen	Top	8.7	8.9	9.3	9.2	9.4	T. 9.1
B. O. D. (5-day, 20°C)	Top	6.7	4.9	4.3	3.0	3.1	T. 4.4
Chloride (Cl)	Top	8.0	6.0	6.0	6.0	6.0	T. 6.4
	Bottom		6.0	6.0	6.0		B. 6.0
Suspended sediment	Top	Composite					T. 32

Location Wharton Street, Philadelphia, Pa. Date December 4, 1951 Sampling study No. 28
Weather Cloudy Water discharge at Trenton (cfs) 11,100

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		3:20 p.m.	3:16 p.m.	3:14 p.m.	3:12 p.m.	3:10 p.m.	
Sounding (ft)			45	43	41		
Temperature (°F)	Top	43	42	42	42	42	T. 42
	Bottom		43	42	43		B. 43
pH	Top	6.4	6.4	6.5	6.6	6.5	T. 6.5
	Bottom		6.5	6.5	7.3		B. 6.8
Specific conductance (micromhos at 25°C)	Top	161	155	144	145	147	T. 150
	Bottom		155	146	145		B. 149
Dissolved oxygen	Top	7.5	8.2	9.6	9.4	9.0	T. 8.7
B. O. D. (5-day, 20°C)	Top	7.2	5.6	4.8	4.3	2.0	T. 4.8
Chloride (Cl)	Top	9.0	8.0	6.0	6.0	7.0	T. 7.2
	Bottom		7.0	6.0	6.0		B. 6.3
Suspended sediment	Top	Composite					T. 36

Table 11.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.--Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Wharton Street, Philadelphia, Pa. Date January 2, 1952 Sampling study No. 29
Weather Overcast Water discharge at Trenton (cfs) 21,800

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:55 a.m.	11:00 a.m.	11:03 a.m.	11:06 a.m.	11:08 a.m.	
Sounding (ft)			42	41	37		
Temperature (°F)	Top	39	38	37	37	37	T. 38
	Bottom		39	38	38		B. 38
pH	Top	6.7	6.8	6.8	6.9	7.0	T. 6.8
	Bottom		6.8	6.9	6.8		B. 6.8
Specific conductance (micromhos at 25°C)	Top	150	142	136	131	127	T. 137
	Bottom		144	139	134		B. 139
Dissolved oxygen	Top	10.5	11.5	11.6	12.5	11.6	T. 11.5
B. O. D. (5-day, 20°C)	Top	4.0	4.6	4.1	4.5	3.0	T. 4.0
Chloride (Cl)	Top	6.0	6.0	5.0	5.0	5.0	T. 5.4
	Bottom		6.0	5.0	5.0		B. 5.3
Suspended sediment	Top	Composite					T. 26

Location Wharton Street, Philadelphia, Pa. Date February 6, 1952 Sampling study No. 30
Weather Clear Water discharge at Trenton (cfs) 43,400

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		9:25 a.m.	9:28 a.m.	9:31 a.m.	9:34 a.m.	9:36 a.m.	
Sounding (ft)			44	42	38		
Temperature (°F)	Top	41	41	41	40	40	T. 41
	Bottom		41	40	40		B. 40
pH	Top	6.2	6.3	6.4	6.3	6.2	T. 6.3
	Bottom		6.4	6.5	6.4		B. 6.4
Specific conductance (micromhos at 25°C)	Top	133	131	121	118	120	T. 125
	Bottom		129	122	117		B. 123
Dissolved oxygen	Top	9.8	11.9	12.2	12.0	12.2	T. 11.6
B. O. D. (5-day, 20°C)	Top	2.1	3.8	4.0	5.6	7.4	T. 4.6
Chloride (Cl)	Top	5.0	5.0	4.0	4.0	4.0	T. 4.4
	Bottom		5.0	4.0	4.0		B. 4.3
Suspended sediment	Top	Composite					T. 57

Location Wharton Street, Philadelphia, Pa. Date March 3, 1952 Sampling study No. 31
Weather Trace of Rain Water discharge at Trenton (cfs) 8,410

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		9:35 a.m.	9:38 a.m.	9:42 a.m.	9:45 a.m.	9:48 a.m.	
Sounding (ft)			46	41	36		
Temperature (°F)	Top	40	40	40	40	39	T. 40
	Bottom		40	40	40		B. 40
pH	Top	6.5	6.3	6.3	6.3	6.3	T. 6.3
	Bottom		6.3	6.3	6.4		B. 6.3
Specific conductance (micromhos at 25°C)	Top	194	191	183	180	173	T.184
	Bottom		191	187	182		B.187
Dissolved oxygen	Top	7.7	7.5	8.2	8.9	9.1	T. 8.3
B. O. D. (5-day, 20°C)	Top	5.0	4.3	3.8	4.4	3.6	T. 4.2
Chloride (Cl)	Top	10	10	9.0	8.0	7.0	T. 8.8
	Bottom		10	8.0	9.0		B. 9.0
Suspended sediment	Top	Composite					T. 22

Location Wharton Street, Philadelphia, Pa. Date April 1, 1952 Sampling study No. 32
Weather Clear Water discharge at Trenton (cfs) 20,800

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		1:15 p.m.	1:18 p.m.	1:21 p.m.	1:24 p.m.	1:28 p.m.	
Sounding (ft)			40	38	35		
Temperature (°F)	Top	50	49	49	49	50	T. 49
	Bottom		51	50	50		B. 50
pH	Top	6.2	6.2	6.5	6.5	6.5	T. 6.4
	Bottom		6.3	6.5	6.5		B. 6.4
Specific conductance (micromhos at 25°C)	Top	90.9	116	96.0	91.8	96.8	T. 98.3
	Bottom		109	96.0	91.6		B. 98.9
Dissolved oxygen	Top	7.5	8.0	9.1	9.3	9.1	T. 8.6
B. O. D. (5-day, 20°C)	Top	5.3	1.6	1.2	.9	.4	T. 1.9
Chloride (Cl)	Top	6.0	6.0	3.0	2.0	4.0	T. 4.2
	Bottom		4.0	3.0	2.0		B. 3.0
Suspended sediment	Top	Composite					T. 14

Table 11. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Wharton Street, Philadelphia, Pa. Date May 6, 1952 Sampling study No. 33
Weather Overcast Water discharge at Trenton (cfs) 16,600

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		9:00 a.m.	9:03 a.m.	9:05 a.m.	9:08 a.m.	9:10 a.m.	
Sounding (ft)			48	47	40		
Temperature (°F)	Top	59	59	59	59	58	T. 59
	Bottom		59	59	59		B. 59
pH	Top	6.4	6.3	6.3	6.4	6.3	T. 6.3
	Bottom		6.3	6.4	6.4		B. 6.4
Specific conductance (micromhos at 25°C)	Top	134	129	127	122	122	T. 127
	Bottom		129	128	124		B. 127
Dissolved oxygen	Top	5.9	6.0	6.1	6.6	6.7	T. 6.3
B. O. D. (5-day, 20°C)	Top	5.6	3.2	2.9	2.7	2.0	T. 3.3
Chloride (Cl)	Top	6.0	5.0	4.0	5.0	5.0	T. 5.0
	Bottom		4.0	5.0	4.0		B. 4.3
Suspended sediment	Top	Composite					T. 24

Location Wharton Street, Philadelphia, Pa. Date June 3, 1952 Sampling study No. 34
Weather Clear Water discharge at Trenton (cfs) 35,600

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		8:38 a.m.	8:42 a.m.	8:43 a.m.	8:45 a.m.	8:46 a.m.	
Sounding (ft)			47	41	41		
Temperature (°F)	Top	66	67	66	66	66	T. 66
	Bottom		68	68	67		B. 68
pH	Top	6.5	6.4	6.5	6.6	6.5	T. 6.5
	Bottom		6.4	6.5	6.5		B. 6.5
Specific conductance (micromhos at 25°C)	Top	129	127	119	115	112	T. 120
	Bottom		119	118	115		B. 117
Dissolved oxygen	Top	5.7	5.6	5.5	6.6	6.9	T. 6.1
B. O. D. (5-day, 20°C)	Top	5.5	4.0	2.2	1.8	2.4	T. 3.2
Chloride (Cl)	Top	6.0	6.0	5.0	4.0	4.0	T. 5.0
	Bottom		4.0	4.0	4.0		B. 4.0
Suspended sediment	Top	Composite					T. 26

Location Wharton Street, Philadelphia, Pa. Date July 8, 1952 Sampling study No. 35
Weather Overcast Water discharge at Trenton (cfs) 3,280

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		1:50 p.m.	1:52 p.m.	1:54 p.m.	1:56 p.m.	1:58 p.m.	
Sounding (ft)			41	44	46		
Temperature (°F)	Top	79	80	80	80	80	T. 80
	Bottom		79	79	79		B. 79
pH	Top	7.0	6.8	6.8	6.8	6.8	T. 6.8
	Bottom		6.8	6.8	6.8		B. 6.8
Specific conductance (micromhos at 25°C)	Top	276	251	253	253	251	T. 257
	Bottom		247	249	251		B. 249
Dissolved oxygen	Top	.0	.1	.1	.1	.1	T. .1
B. O. D. (5-day, 20°C)	Top	20.4	13.2	8.4	8.4	6.0	T. 11.3
Chloride (Cl)	Top	15	14	14	13	13	T. 14
	Bottom		12	13	13		B. 13
Suspended sediment	Top	Composite					T. 56

Location Wharton Street, Philadelphia, Pa. Date August 7, 1952 Sampling study No. 36
Weather Cloudy Water discharge at Trenton (cfs) 5,920

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:20 p.m.	12:22 p.m.	12:24 p.m.	12:26 p.m.	12:28 p.m.	
Sounding (ft)			42	42	38		
Temperature (°F)	Top	83	83	82	81	82	T. 82
	Bottom		82	81	82		B. 82
pH	Top	6.7	6.7	6.7	6.7	6.7	T. 6.7
	Bottom		6.7	6.7	6.7		B. 6.7
Specific conductance (micromhos at 25°C)	Top	215	213	209	207	206	T. 210
	Bottom		210	210	209		B. 210
Dissolved oxygen	Top	1.1	1.1	.2	.4	.9	T. .7
B. O. D. (5-day, 20°C)	Top	10.6	5.5	5.2	5.5	5.6	T. 6.5
Chloride (Cl)	Top	12	12	12	10	11	T. 11
	Bottom		11	11	11		B. 11
Suspended sediment	Top	Composite					T. 54

Table 11.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.--Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Wharton Street, Philadelphia Date September 4, 1952 Sampling study No. 37
Weather Clear Water discharge at Trenton (cfs) 27,100

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		2:00 p.m.	2:02 p.m.	2:05 p.m.	2:07 p.m.	2:09 p.m.	
Sounding (ft)			48	45	41		
Temperature (°F)	Top	77	77	77	77	76	T. 77
	Bottom		78	78	77		B. 78
pH	Top	6.7	6.9	6.7	6.6	6.6	T. 6.7
	Bottom		6.8	6.6	6.6		B. 6.7
Specific conductance (micromhos at 25°C)	Top	188	213	189	187	185	T. 192
	Bottom		186	188	188		B. 187
Dissolved oxygen	Top	3.5	4.1	4.1	4.8	4.4	T. 4.2
B. O. D. (5-day, 20°C)	Top	3.2	2.4	3.4	3.4	2.4	T. 3.0
Chloride (Cl)	Top	9.0	13	9.0	9.0	9.0	T. 9.8
	Bottom		9.0	9.0	9.0		B. 9.0
Suspended sediment	Top	Composite					T. 6

Location Wharton Street, Philadelphia, Pa. Date October 7, 1952 Sampling study No. 38
Weather Slightly Cloudy Water discharge at Trenton (cfs) 4,120

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		2:45 p.m.	2:48 p.m.	2:51 p.m.	2:54 p.m.	2:57 p.m.	
Sounding (ft)			42	44	40		
Temperature (°F)	Top	69	69	69	68	66	T. 68
	Bottom		69	68	68		B. 68
pH	Top	6.8	6.8	7.2	6.8	6.6	T. 6.8
	Bottom		6.7	6.9	6.9		B. 6.8
Specific conductance (micromhos at 25°C)	Top	257	257	249	263	246	T. 254
	Bottom		261	255	244		B. 253
Dissolved oxygen	Top	1.4	1.8	1.0	1.5	1.8	T. 1.5
B. O. D. (5-day, 20°C)	Top	9.6	9.8	5.8	5.3	5.2	T. 7.1
Chloride (Cl)	Top	15	16	15	15	15	T. 15
	Bottom		15	16	15		B. 15
Suspended sediment	Top	Composite					T. 15

Location Wharton Street, Philadelphia, Pa. Date November 7, 1952 Sampling study No. 39
Weather Clear Water discharge at Trenton (cfs) 2,820

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		9:37 a.m.	9:40 a.m.	9:44 a.m.	9:47 a.m.	9:50 a.m.	
Sounding (ft)			22	40	34		
Temperature (°F)	Top	53	54	53	53	53	T. 53
	Bottom		53	53	53		B. 53
pH	Top	6.7	6.7	6.4	6.6	6.6	T. 6.6
	Bottom		6.4	6.4	6.3		B. 6.4
Specific conductance (micromhos at 25°C)	Top	334	326	314	323	330	T. 325
	Bottom		314	311	314		B. 313
Dissolved oxygen	Top	1.7	1.8	2.2	1.9	1.8	T. 1.9
B. O. D. (5-day, 20°C)	Top	10	7.5	7.5	7.2	7.1	T. 7.9
Chloride (Cl)	Top	22	21	22	21	24	T. 22
	Bottom		22	22	22		B. 22
Suspended sediment	Top	Composite					T. 14

Location Wharton Street, Philadelphia, Pa. Date December 5, 1952 Sampling study No. 40
Weather Rain Water discharge at Trenton (cfs) 12,600

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		2:58 p.m.	3:01 p.m.	3:04 p.m.	3:07 p.m.	3:10 p.m.	
Sounding (ft)			48	45	43		
Temperature (°F)	Top	47	47	46	45	45	T. 46
	Bottom		47	47	47		B. 47
pH	Top	6.1	6.1	6.1	5.9	—	T. 6.0
	Bottom		6.2	6.2	6.2		B. 6.2
Specific conductance (micromhos at 25°C)	Top	173	171	165	153	—	T. 165
	Bottom		171	162	151		B. 161
Dissolved oxygen	Top	5.2	5.7	6.3	6.9	7.3	T. 6.3
B. O. D. (5-day, 20°C)	Top	5.2	5.5	6.2	6.5	4.5	T. 5.6
Chloride (Cl)	Top	10	9.5	9.5	9.0	—	T. 9.5
	Bottom		9.0	9.0	9.0		B. 9.0
Suspended sediment	Top	Composite					T. 18

Table 12.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location League Island, Philadelphia, Pa. Date August 2, 1949 Sampling study No. 1
Weather Cloudy Water discharge at Trenton (cfs) 2,940

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		--	--	12:00 n.	--	--	
Sounding (ft)			45	45	21		
Temperature (°F)	Top	86	86	84	86	86	T. 86
	Bottom		86	84	86		B. 85
pH	Top	6.1	6.0	5.9	6.0	6.0	T. 6.0
	Bottom		6.0	6.1	5.8		B. 6.0
Specific conductance (micromhos at 25°C)	Top	298	279	291	295	303	T. 293
	Bottom		302	291	294		B. 296
Dissolved oxygen	Top	.0	.3	.2	.5	1.0	T. .4
B. O. D. (5-day, 20°C)	Top	20.0	17.0	15.0	15.0	15.0	T. 16.4
Chloride (Cl)	Top	20	19	18	18	21	T. 19
	Bottom		19	18	20		B. 19
Suspended sediment	Top	Composite					T. --

Location League Island, Philadelphia, Pa. Date September 7, 1949 Sampling study No. 2
Weather Occasional Rain Water discharge at Trenton (cfs) 3,210

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		--	--	1:30 p.m.	--	--	
Sounding (ft)			--	--	--		
Temperature (°F)	Top	78	77	77	77	76	T. 77
	Bottom		76	76	77		B. 76
pH	Top	6.3	6.6	6.5	6.4	6.5	T. 6.5
	Bottom		6.4	6.3	6.3		B. 6.3
Specific conductance (micromhos at 25°C)	Top	509	602	577	510	535	T. 547
	Bottom		622	618	515		B. 585
Dissolved oxygen	Top	.9	1.0	1.3	1.0	1.0	T. 1.0
B. O. D. (5-day, 20°C)	Top	10.4	10.6	9.0	10.0	8.0	T. 9.6
Chloride (Cl)	Top	70	90	88	70	75	T. 79
	Bottom		104	99	74		B. 92
Suspended sediment	Top	Composite					T. 36

Location League Island, Philadelphia, Pa. Date October 5, 1949 Sampling study No. 3
Weather Occasional Rain Water discharge at Trenton (cfs) 3,280

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		--	--	11:00 a.m.	--	--	
Sounding (ft)			b50	--	23		
Temperature (°F)	Top	69	69	69	69	69	T. 69
	Bottom		70	70	70		B. 70
pH	Top	6.3	6.4	6.4	6.4	6.3	T. 6.4
	Bottom		6.6	6.6	6.6		B. 6.6
Specific conductance (micromhos at 25°C)	Top	632	625	644	763	721	T. 677
	Bottom		594	618	729		B. 647
Dissolved oxygen	Top	1.5	1.0	1.4	1.3	2.3	T. 1.5
B. O. D. (5-day, 20°C)	Top	6.3	6.0	4.6	4.1	4.3	T. 5.1
Chloride (Cl)	Top	96	94	99	128	123	T. 108
	Bottom		87	95	125		B. 102
Suspended sediment	Top	Composite					T. 49

b Exceeded this value.

Location League Island, Philadelphia, Pa. Date November 2, 1949 Sampling study No. 4
Weather Clear Water discharge at Trenton (cfs) 3,430

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		--	--	11:00 a.m.	--	--	
Sounding (ft)			48	45	30		
Temperature (°F)	Top	60	60	60	60	60	T. 60
	Bottom		60	60	60		B. 60
pH	Top	6.5	6.5	6.4	6.5	6.4	T. 6.5
	Bottom		6.6	6.4	6.6		B. 6.5
Specific conductance (micromhos at 25°C)	Top	753	985	858	815	813	T. 845
	Bottom		979	953	828		B. 920
Dissolved oxygen	Top	1.3	1.6	2.4	2.2	3.0	T. 2.1
B. O. D. (5-day, 20°C)	Top	9.0	8.1	11.1	9.6	9.0	T. 9.4
Chloride (Cl)	Top	131	196	161	150	151	T. 158
	Bottom		193	188	152		B. 178
Suspended sediment	Top	Composite					T. 32

Table 12. -- WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location League Island, Philadelphia, Pa. Date December 2, 1949 Sampling study No. 5
Weather Occasional Rain Water discharge at Trenton (cfs) 4,750

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		--	--	10:30 a.m.	--	--	
Sounding (ft)			48	48	24		
Temperature (°F)	Top	45	45	45	45	45	T. 45
	Bottom		45	45	46		B. 45
pH	Top	6.2	6.1	6.2	6.2	6.3	T. 6.2
	Bottom		6.1	6.1	6.1		B. 6.1
Specific conductance (micromhos at 25°C)	Top	381	412	416	386	394	T. 398
	Bottom		375	426	405		B. 402
Dissolved oxygen	Top	2.6	3.0	3.1	3.3	3.2	T. 3.0
B. O. D. (5-day, 20°C)	Top	2.5	1.5	1.0	2.5	1.5	T. 1.8
Chloride (Cl)	Top	42	51	52	48	46	T. 48
	Bottom		42	54	49		B. 48
Suspended sediment	Top	Composite					T. 57

Location League Island, Philadelphia, Pa. Date January 5, 1950 Sampling study No. 6
Weather Cloudy Water discharge at Trenton (cfs) 11,100

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:21 a.m.	10:19 a.m.	10:17 a.m.	10:15 a.m.	10:13 a.m.	
Sounding (ft)			46	45	23		
Temperature (°F)	Top	45	45	45	48	48	T. 46
	Bottom		45	45	45		B. 45
pH	Top	6.4	6.3	6.3	6.3	6.3	T. 6.3
	Bottom		6.0	6.1	6.0		B. 6.0
Specific conductance (micromhos at 25°C)	Top	157	137	138	139	140	T. 142
	Bottom		129	125	135		B. 130
Dissolved oxygen	Top	7.5	8.1	8.5	8.5	8.3	T. 8.2
B. O. D. (5-day, 20°C)	Top	4.8	5.0	4.0	5.5	4.5	T. 4.8
Chloride (Cl)	Top	10	10	10	10	8.0	T. 9.6
	Bottom		9.0	8.0	9.0		B. 8.7
Suspended sediment	Top	Composite					T. 22

Location League Island, Philadelphia, Pa. Date February 3, 1950 Sampling study No. 7
Weather Clear Water discharge at Trenton (cfs) 14,300

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:20 a.m.	10:25 a.m.	10:28 a.m.	10:32 a.m.	10:34 a.m.	
Sounding (ft)			47	47	24		
Temperature (°F)	Top	42	41	40	40	41	T. 41
	Bottom		40	40	40		B. 40
pH	Top	6.5	6.5	6.5	6.5	6.4	T. 6.5
	Bottom		6.5	6.5	6.4		B. 6.5
Specific conductance (micromhos at 25°C)	Top	170	156	130	141	149	T. 149
	Bottom		134	131	143		B. 136
Dissolved oxygen	Top	6.5	6.4	8.3	8.1	7.7	T. 7.4
B. O. D. (5-day, 20°C)	Top	4.0	2.5	5.0	4.0	4.0	T. 3.9
Chloride (Cl)	Top	11	10	8.0	9.0	9.0	T. 9.4
	Bottom		8.0	7.0	8.0		B. 7.7
Suspended sediment	Top	Composite					T. 16

Location League Island, Philadelphia, Pa. Date March 7, 1950 Sampling study No. 8
Weather Cloudy Water discharge at Trenton (cfs) 7,260

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		3:03 p.m.	3:00 p.m.	2:58 p.m.	2:55 p.m.	2:50 p.m.	
Sounding (ft)			47	45	28		
Temperature (°F)	Top	38	38	38	38	38	T. 38
	Bottom		38	37	38		B. 38
pH	Top	6.6	6.6	6.6	6.5	6.5	T. 6.6
	Bottom		6.5	6.5	6.5		B. 6.5
Specific conductance (micromhos at 25°C)	Top	207	203	201	201	202	T. 203
	Bottom		206	201	200		B. 202
Dissolved oxygen	Top	6.8	8.3	7.3	8.3	8.8	T. 7.9
B. O. D. (5-day, 20°C)	Top	3.4	4.9	4.4	4.4	3.4	T. 4.1
Chloride (Cl)	Top	13	12	12	12	12	T. 12
	Bottom		13	12	12		B. 12
Suspended sediment	Top	Composite					T. 49

Table 12.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.--Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location League Island, Philadelphia, Pa. Date April 3, 1950 Sampling study No. 9
Weather Cloudy Water discharge at Trenton (cfs) 32,300

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		3:07 p.m.	3:05 p.m.	3:00 p.m.	2:55 p.m.	2:50 p.m.	
Sounding (ft)			47	b50	27		
Temperature (°F)	Top	45	44	44	44	47	T. 45
	Bottom		45	44	44		B. 44
pH	Top	6.6	6.5	6.5	6.5	6.4	T. 6.5
	Bottom		6.6	6.5	6.5		B. 6.5
Specific conductance (micromhos at 25°C)	Top	107	95.0	81.0	80.0	88.1	T. 90.2
	Bottom		94.0	85.7	79.1		B. 86.3
Dissolved oxygen	Top	9.7	10.5	10.3	10.5	10.0	T. 10.2
B. O. D. (5-day, 20°C)	Top	2.8	3.8	3.1	2.9	3.0	T. 3.1
Chloride (Cl)	Top	6.0	5.0	5.0	4.0	4.0	T. 4.8
	Bottom		6.0	6.0	4.0		B. 5.3
Suspended sediment	Top	Composite					T. 28

b Exceeded this value.

Location League Island, Philadelphia, Pa. Date May 3, 1950 Sampling study No. 10
Weather Cloudy Water discharge at Trenton (cfs) 17,000

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		3:45 p.m.	3:48 p.m.	3:50 p.m.	3:52 p.m.	3:55 p.m.	
Sounding (ft)			b50	b50	47		
Temperature (°F)	Top	56	55	55	55	55	T. 55
	Bottom		55	55	55		B. 55
pH	Top	6.4	6.5	6.5	6.4	6.4	T. 6.4
	Bottom		6.4	6.4	6.4		B. 6.4
Specific conductance (micromhos at 25°C)	Top	163	171	169	150	148	T. 160
	Bottom		173	168	155		B. 165
Dissolved oxygen	Top	2.9	3.6	3.3	4.0	4.2	T. 3.6
B. O. D. (5-day, 20°C)	Top	10.2	9.3	7.2	5.9	6.7	T. 7.9
Chloride (Cl)	Top	8.0	8.0	8.0	7.0	8.0	T. 7.8
	Bottom		8.0	9.0	8.0		B. 8.3
Suspended sediment	Top	Composite					T. 16

b Exceeded this value.

Location League Island, Philadelphia, Pa. Date June 5, 1950 Sampling study No. 11
Weather Clear Water discharge at Trenton (cfs) 18,500

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		9:35 a.m.	9:31 a.m.	9:28 a.m.	9:25 a.m.	9:22 a.m.	
Sounding (ft)			46	b50	25		
Temperature (°F)	Top	68	68	67	67	67	T. 67
	Bottom		68	68	69		B. 68
pH	Top	6.4	6.3	6.3	6.2	6.3	T. 6.3
	Bottom		6.2	6.2	6.2		B. 6.2
Specific conductance (micromhos at 25°C)	Top	146	145	143	143	145	T. 144
	Bottom		147	145	143		B. 145
Dissolved oxygen	Top	2.6	3.1	2.9	2.9	3.0	T. 2.9
B. O. D. (5-day, 20°C)	Top	1.5	1.7	.6	.0	.9	T. .9
Chloride (Cl)	Top	6.0	7.0	6.0	7.0	7.0	T. 6.7
	Bottom		6.0	7.0	7.0		B. 6.7
Suspended sediment	Top	Composite					T. 28

b Exceeded this value.

Location League Island, Philadelphia, Pa. Date July 5, 1950 Sampling study No. 12
Weather Cloudy Water discharge at Trenton (cfs) 5,630

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		9:10 a.m.	9:15 a.m.	9:20 a.m.	9:25 a.m.	9:30 a.m.	
Sounding (ft)			48	49	26		
Temperature (°F)	Top	78	78	78	78	78	T. 78
	Bottom		78	78	78		B. 78
pH	Top	6.4	6.4	6.4	6.4	6.4	T. 6.4
	Bottom		6.4	6.3	6.1		B. 6.3
Specific conductance (micromhos at 25°C)	Top	209	211	209	208	209	T. 209
	Bottom		211	211	208		B. 210
Dissolved oxygen	Top	.6	.8	.9	.9	.9	T. .8
B. O. D. (5-day, 20°C)	Top	5.9	5.9	5.8	3.8	5.4	T. 5.4
Chloride (Cl)	Top	13	12	13	12	13	T. 13
	Bottom		12	13	13		B. 13
Suspended sediment	Top	Composite					T. 29

Table 12. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location League Island, Philadelphia, Pa. Date August 1, 1950 Sampling study No. 13
Weather Cloudy Water discharge at Trenton (cfs) 4,710

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		9:22 a.m.	9:20 a.m.	9:17 a.m.	9:14 a.m.	9:10 a.m.	
Sounding (ft)			49	49	21		
Temperature (°F)	Top	80	80	80	80	80	T. 80
	Bottom		80	80	80		B. 80
pH	Top	6.3	6.3	6.2	6.3	6.3	T. 6.3
	Bottom		6.3	6.1	6.3		B. 6.2
Specific conductance (micromhos at 25°C)	Top	205	186	191	186	190	T. 192
	Bottom		199	191	191		B. 194
Dissolved oxygen	Top	.0	.2	.2	.4	.3	T. .2
B. O. D. (5-day, 20°C)	Top	6.6	5.3	4.1	3.1	2.4	T. 4.3
Chloride (Cl)	Top	15	13	12	13	13	T. 13
	Bottom		12	13	12		B. 12
Suspended sediment	Top	Composite					T. 26

Location League Island, Philadelphia, Pa. Date September 5, 1950 Sampling study No. 14
Weather Clear Water discharge at Trenton (cfs) 5,800

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:02 a.m.	10:00 a.m.	9:55 a.m.	9:50 a.m.	9:48 a.m.	
Sounding (ft)			49	47	27		
Temperature (°F)	Top	78	78	78	78	78	T. 78
	Bottom		77	78	78		B. 78
pH	Top	6.2	6.2	6.2	6.2	6.2	T. 6.2
	Bottom		6.2	6.2	6.2		B. 6.2
Specific conductance (micromhos at 25°C)	Top	281	284	284	281	281	T. 282
	Bottom		279	279	284		B. 281
Dissolved oxygen	Top	.0	.0	.0	.0	.0	T. .0
B. O. D. (5-day, 20°C)	Top	8.7	6.9	5.7	6.3	6.3	T. 6.8
Chloride (Cl)	Top	17	17	18	18	17	T. 17
	Bottom		18	17	17		B. 17
Suspended sediment	Top	Composite					T. 18

Location League Island, Philadelphia, Pa. Date October 2, 1950 Sampling study No. 15
Weather Misty Water discharge at Trenton (cfs) 3,920

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		2:25 p.m.	2:20 p.m.	2:15 p.m.	2:10 p.m.	2:05 p.m.	
Sounding (ft)			b50	b50	26		
Temperature (°F)	Top	69	69	69	69	69	T. 69
	Bottom		69	69	69		B. 69
pH	Top	6.5	6.5	6.4	6.1	6.2	T. 6.3
	Bottom		6.2	6.8	6.2		B. 6.4
Specific conductance (micromhos at 25°C)	Top	288	280	275	275	263	T. 276
	Bottom		265	258	263		B. 262
Dissolved oxygen	Top	.0	.0	.1	.4	.1	T. .1
B. O. D. (5-day, 20°C)	Top	3.3	4.5	5.2	7.0	6.7	T. 5.3
Chloride (Cl)	Top	18	16	16	16	14	T. 16
	Bottom		14	14	14		B. 14
Suspended sediment	Top	Composite					T. 45

b Exceeded this value.

Location League Island, Philadelphia, Pa. Date November 1, 1950 Sampling study No. 16
Weather Clear Water discharge at Trenton (cfs) 2,600

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		2:53 p.m.	2:49 p.m.	2:45 p.m.	2:43 p.m.	2:40 p.m.	
Sounding (ft)			48	b50	24		
Temperature (°F)	Top	65	64	65	65	66	T. 65
	Bottom		66	65	66		B. 66
pH	Top	6.5	6.5	6.5	6.5	6.6	T. 6.5
	Bottom		6.5	6.5	6.5		B. 6.5
Specific conductance (micromhos at 25°C)	Top	343	346	348	348	370	T. 351
	Bottom		352	351	362		B. 355
Dissolved oxygen	Top	.0	.0	.0	.5	.6	T. .2
B. O. D. (5-day, 20°C)	Top	6.6	6.9	6.3	8.0	4.8	T. 6.5
Chloride (Cl)	Top	24	25	26	26	30	T. 26
	Bottom		25	25	28		B. 26
Suspended sediment	Top	Composite					T. 55

b Exceeded this value.

Table 12.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.--Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location League Island, Philadelphia, Pa. Date December 5, 1950 Sampling study No. 17
Weather Clear Water discharge at Trenton (cfs) 83,500

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		2:48 p.m.	2:45 p.m.	2:43 p.m.	2:40 p.m.	2:37 p.m.	
Sounding (ft)			b50	b50	28		
Temperature (°F)	Top	42	42	42	42	41	T. 42
	Bottom		42	42	42		B. 42
pH	Top	6.2	6.2	6.3	6.2	6.1	T. 6.2
	Bottom		6.3	6.3	6.2		B. 6.3
Specific conductance (micromhos at 25°C)	Top	118	121	114	117	118	T. 118
	Bottom		117	116	116		B. 116
Dissolved oxygen	Top	11.3	11.4	12.3	12.0	12.1	T. 11.9
B. O. D. (5-day, 20°C)	Top	8.6	7.1	5.6	5.8	5.9	T. 6.6
Chloride (Cl)	Top	6.9	6.0	4.0	4.0	6.0	T. 5.2
	Bottom		4.0	4.0	4.0		B. 4.0
Suspended sediment	Top	Composite					T. 45

b Exceeded this value.

Location League Island, Philadelphia, Pa. Date January 2, 1951 Sampling study No. 18
Weather Overcast Water discharge at Trenton (cfs) 8,670

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:41 a.m.	10:38 a.m.	10:35 a.m.	10:33 a.m.	10:30 a.m.	
Sounding (ft)			b50	45	27		
Temperature (°F)	Top	36	35	35	35	34	T. 35
	Bottom		36	36	35		B. 36
pH	Top	6.6	6.3	6.3	6.3	6.3	T. 6.4
	Bottom		6.2	6.2	6.2		B. 6.2
Specific conductance (micromhos at 25°C)	Top	214	213	209	208	212	T. 211
	Bottom		217	213	209		B. 213
Dissolved oxygen	Top	5.4	5.0	5.5	5.4	5.9	T. 5.4
B. O. D. (5-day, 20°C)	Top	b6	b6	b6	b6	b6	T. b6.0
Chloride (Cl)	Top	10	10	9	10	8	T. 9.4
	Bottom		10	10	10		B. 10
Suspended sediment	Top	Composite					T. 22

b Exceeded this value.

Location League Island, Philadelphia, Pa. Date March 1, 1951 Sampling study No. 19
Weather Rain Water discharge at Trenton (cfs) 21,000

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:15 a.m.	10:20 a.m.	10:25 a.m.	10:30 a.m.	10:35 a.m.	
Sounding (ft)			49	b50	22		
Temperature (°F)	Top	41	41	41	41	41	T. 41
	Bottom		40	41	40		B. 40
pH	Top	6.3	6.4	6.4	6.4	6.4	T. 6.4
	Bottom		6.2	6.3	6.2		B. 6.2
Specific conductance (micromhos at 25°C)	Top	139	132	120	116	113	T. 124
	Bottom		133	121	117		B. 124
Dissolved oxygen	Top	10.2	10.6	11.0	10.8	11.3	T. 10.8
B. O. D. (5-day, 20°C)	Top	7.7	6.5	5.4	5.3	5.3	T. 6.0
Chloride (Cl)	Top	6.0	6.0	5.0	5.0	5.0	T. 5.4
	Bottom		7.0	5.0	4.0		B. 5.3
Suspended sediment	Top	Composite					T. 40

b Exceeded this value.

Location League Island, Philadelphia, Pa. Date April 3, 1951 Sampling study No. 20
Weather Overcast Water discharge at Trenton (cfs) 53,100

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:17 a.m.	10:13 a.m.	10:10 a.m.	10:08 a.m.	10:05 a.m.	
Sounding (ft)			b50	b50	30		
Temperature (°F)	Top	47	46	46	46	47	T. 46
	Bottom		46	46	46		B. 46
pH	Top	6.6	6.8	6.8	6.7	6.7	T. 6.7
	Bottom		6.7	6.7	6.7		B. 6.7
Specific conductance (micromhos at 25°C)	Top	93.5	83.4	73.7	70.9	97.8	T. 83.9
	Bottom		83.0	72.7	69.1		B. 74.9
Dissolved oxygen	Top	10.6	10.9	10.6	10.9	10.2	T. 10.6
B. O. D. (5-day, 20°C)	Top	3.9	3.7	3.6	3.2	3.1	T. 3.5
Chloride (Cl)	Top	4.0	4.0	4.0	4.0	4.0	T. 4.0
	Bottom		4.0	4.0	4.0		B. 4.0
Suspended sediment	Top	Composite					T. 90

b Exceeded this value.

Table 12. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location League Island, Philadelphia, Pa. Date May 2, 1951 Sampling study No. 21
Weather Clear Water discharge at Trenton (cfs) 12,400

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:35 p.m.	11:30 p.m.	11:25 p.m.	11:20 p.m.	11:15 p.m.	
Sounding (ft)			b50	b50	25		
Temperature (°F)	Top	64	63	64	64	64	T. 64
	Bottom		64	64	65		B. 64
pH	Top	7.6	7.7	7.7	7.6	7.6	T. 7.6
	Bottom		6.7	6.6	6.7		B. 6.7
Specific conductance (micromhos at 25°C)	Top	181	170	167	166	166	T. 170
	Bottom		171	166	172		B. 170
Dissolved oxygen	Top	2.2	3.1	2.6	2.7	2.9	T. 2.7
B. O. D. (5-day, 20°C)	Top	4.6	3.1	2.4	2.1	2.8	T. 3.0
Chloride (Cl)	Top	10	9.0	9.0	9.0	9.0	T. 9.2
	Bottom		9.0	8.0	8.0		B. 8.3
Suspended sediment	Top	Composite					T. 12

b Exceeded this value.

Location League Island, Philadelphia, Pa. Date June 8, 1951 Sampling study No. 22
Weather Rain Water discharge at Trenton (cfs) 7,520

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:35 p.m.	12:37 p.m.	12:39 p.m.	12:41 p.m.	12:43 p.m.	
Sounding (ft)			44	b50	46		
Temperature (°F)	Top	72	73	73	72	72	T. 72
	Bottom		72	72	72		B. 72
pH	Top	6.5	6.6	6.6	6.5	6.5	T. 6.5
	Bottom		6.5	6.5	6.5		B. 6.5
Specific conductance (micromhos at 25°C)	Top	202	191	189	196	205	T. 197
	Bottom		191	192	199		B. 194
Dissolved oxygen	Top	.6	.8	1.0	.8	1.2	T. .9
B. O. D. (5-day, 20°C)	Top	7.3	5.4	6.0	3.6	3.0	T. 5.1
Chloride (Cl)	Top	10	10	10	10	10	T. 10
	Bottom		10	10	10		B. 10
Suspended sediment	Top	Composite					T. 19

b Exceeded this value.

Location League Island, Philadelphia, Pa. Date July 6, 1951 Sampling study No. 23
Weather Clear Water discharge at Trenton (cfs) 9,250

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:36 p.m.	12:39 p.m.	12:41 p.m.	12:44 p.m.	12:47 p.m.	
Sounding (ft)			b50	b50	35		
Temperature (°F)	Top	79	79	78	78	77	T. 78
	Bottom		79	79	78		B. 79
pH	Top	6.6	6.6	6.6	6.6	6.6	T. 6.6
	Bottom		6.5	6.4	6.4		B. 6.4
Specific conductance (micromhos at 25°C)	Top	218	208	207	202	199	T. 207
	Bottom		210	201	205		B. 205
Dissolved oxygen	Top	1.6	1.0	1.6	2.0	3.9	T. 2.0
B. O. D. (5-day, 20°C)	Top	.4	.0	.2	.2	.5	T. .3
Chloride (Cl)	Top	12	12	12	12	12	T. 12
	Bottom		12	12	12		B. 12
Suspended sediment	Top	Composite					T. 12

b Exceeded this value.

Location League Island, Philadelphia, Pa. Date August 2, 1951 Sampling study No. 24
Weather Clear Water discharge at Trenton (cfs) 10,300

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:55 p.m.	12:57 p.m.	12:59 p.m.	1:01 p.m.	1:03 p.m.	
Sounding (ft)			b50	b50	28		
Temperature (°F)	Top	80	80	80	80	80	T. 80
	Bottom		80	80	80		B. 80
pH	Top	6.7	6.8	6.7	6.7	7.1	T. 6.8
	Bottom		6.8	6.7	6.8		B. 6.8
Specific conductance (micromhos at 25°C)	Top	231	224	216	213	209	T. 219
	Bottom		231	221	219		B. 224
Dissolved oxygen	Top	2.2	2.4	3.6	3.6	4.6	T. 3.3
B. O. D. (5-day, 20°C)	Top	.0	.0	.6	1.2	2.7	T. .9
Chloride (Cl)	Top	12	11	11	11	11	T. 11
	Bottom		11	11	11		B. 11
Suspended sediment	Top	Composite					T. 10

b Exceeded this value.

Table 12. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location League Island, Philadelphia, Pa. Date September 5, 1951 Sampling study No. 25
Weather Cloudy Water discharge at Trenton (cfs) 3,680

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:22 p.m.	12:24 p.m.	12:26 p.m.	12:28 p.m.	12:30 p.m.	
Sounding (ft)			35	45	35		
Temperature (°F)	Top	79	79	78	78	78	T. 78
	Bottom		78	78	78		B. 78
pH	Top	6.4	6.4	6.3	6.4	6.4	T. 6.4
	Bottom		6.4	6.4	6.4		B. 6.4
Specific conductance (micromhos at 25°C)	Top	301	284	282	291	298	T. 291
	Bottom		275	284	293		B. 284
Dissolved oxygen	Top	.4	.5	.0	.1	.6	T. .3
B. O. D. (5-day, 20°C)	Top	12.9	11.8	9.2	9.0	8.6	T. 10.3
Chloride (Cl)	Top	15	14	14	14	15	T. 14
	Bottom		13	14	14		B. 14
Suspended sediment	Top	Composite					T. 36

Location League Island, Philadelphia, Pa. Date October 1, 1951 Sampling study No. 26
Weather Clear Water discharge at Trenton (cfs) 3,040

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		2:56 p.m.	2:54 p.m.	2:52 p.m.	2:50 p.m.	2:48 p.m.	
Sounding (ft)			b50	b50	37		
Temperature (°F)	Top	71	71	71	72	72	T. 71
	Bottom		72	72	71		B. 72
pH	Top	6.5	6.4	6.5	6.5	6.5	T. 6.5
	Bottom		6.5	7.6	6.4		B. 6.8
Specific conductance (micromhos at 25°C)	Top	362	390	376	365	377	T. 374
	Bottom		384	396	425		B. 402
Dissolved oxygen	Top	2.0	2.2	.9	1.7	1.4	T. 1.6
B. O. D. (5-day, 20°C)	Top	6.9	3.3	3.0	3.3	2.1	T. 3.7
Chloride (Cl)	Top	25	28	25	25	25	T. 26
	Bottom		28	38	40		B. 35
Suspended sediment	Top	Composite					T. 30

b Exceeded this value.

Location League Island, Philadelphia, Pa. Date November 5, 1951 Sampling study No. 27
Weather Clear Water discharge at Trenton (cfs) 39,800

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		2:30 p.m.	2:33 p.m.	2:36 p.m.	2:39 p.m.	2:42 p.m.	
Sounding (ft)			49	b50	28		
Temperature (°F)	Top	49	49	49	49	48	T. 49
	Bottom		48	48	48		B. 48
pH	Top	6.5	6.5	6.6	6.5	6.5	T. 6.5
	Bottom		6.5	6.7	6.6		B. 6.6
Specific conductance (micromhos at 25°C)	Top	173	169	167	162	175	T. 169
	Bottom		182	164	161		B. 169
Dissolved oxygen	Top	7.5	7.7	7.6	8.4	7.0	T. 7.6
B. O. D. (5-day, 20°C)	Top	5.4	4.8	4.8	3.0	2.9	T. 4.2
Chloride (Cl)	Top	7.0	8.0	8.0	8.0	8.0	T. 7.8
	Bottom		8.0	7.0	8.0		B. 7.7
Suspended sediment	Top	Composite					T. 25

b Exceeded this value.

Location League Island, Philadelphia, Pa. Date December 4, 1951 Sampling study No. 28
Weather Cloudy Water discharge at Trenton (cfs) 11,100

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		2:37 p.m.	2:34 p.m.	2:30 p.m.	2:28 p.m.	2:26 p.m.	
Sounding (ft)			b50	b50	25		
Temperature (°F)	Top	43	43	43	43	44	T. 43
	Bottom		44	45	45		B. 45
pH	Top	6.5	6.3	6.3	--	6.2	T. 6.3
	Bottom		6.3	6.3	6.3		B. 6.3
Specific conductance (micromhos at 25°C)	Top	160	168	173	--	177	T. 169
	Bottom		164	170	176		B. 170
Dissolved oxygen	Top	7.7	8.0	7.4	7.2	7.2	T. 7.5
B. O. D. (5-day, 20°C)	Top	5.2	5.1	4.2	4.4	4.2	T. 4.6
Chloride (Cl)	Top	7.0	8.0	8.0	--	8.0	T. 7.7
	Bottom		8.0	8.0	8.0		B. 8.0
Suspended sediment	Top	Composite					T. 19

b Exceeded this value.

Table 12.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.--Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location League Island, Philadelphia, Pa. Date January 2, 1952 Sampling study No. 29
Weather Overcast Water discharge at Trenton (cfs) 21,800

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		2:00 p.m.	2:02 p.m.	2:05 p.m.	2:07 p.m.	2:10 p.m.	
Sounding (ft)			45	48	47		
Temperature (°F)	Top	38	38	37	38	38	T. 38
	Bottom		37	37	38		B.
pH	Top	6.7	6.8	6.9	6.9	6.6	T. 6.8
	Bottom		6.7	6.9	6.7		B. 6.8
Specific conductance (micromhos at 25°C)	Top	134	138	132	132	135	T. 134
	Bottom		137	131	133		B. 134
Dissolved oxygen	Top	10.8	10.6	10.8	10.7	10.5	T. 10.7
B. O. D. (5-day, 20°C)	Top	5.0	3.5	3.5	3.1	3.5	T. 3.7
Chloride (Cl)	Top	6.0	6.0	6.0	6.0	6.0	T. 6.0
	Bottom		5.0	5.0	6.0		B. 5.3
Suspended sediment	Top	Composite					T. 16

Location League Island, Philadelphia, Pa. Date February 6, 1952 Sampling study No. 30
Weather Clear Water discharge at Trenton (cfs) 43,400

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:00 a.m.	10:03 a.m.	10:05 a.m.	10:07 a.m.	10:10 a.m.	
Sounding (ft)			48	50	25		
Temperature (°F)	Top	41	41	40	40	39	T. 40
	Bottom		41	40	39		B. 40
pH	Top	6.2	6.4	6.5	6.4	6.3	T. 6.4
	Bottom		6.4	6.3	6.4		B. 6.4
Specific conductance (micromhos at 25°C)	Top	159	162	128	126	127	T. 140
	Bottom		169	129	126		B. 141
Dissolved oxygen	Top	11.8	12.2	12.2	12.2	12.0	T. 12.1
B. O. D. (5-day, 20°C)	Top	4.5	3.9	4.1	4.5	5.4	T. 4.5
Chloride (Cl)	Top	5.0	6.0	4.0	4.0	4.0	T. 4.6
	Bottom		8.0	5.0	4.0		B. 5.7
Suspended sediment	Top	Composite					T. 49

Location League Island, Philadelphia, Pa. Date March 3, 1952 Sampling study No. 31
Weather Overcast Water discharge at Trenton (cfs) 8,410

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:20 a.m.	10:23 a.m.	10:26 a.m.	10:29 a.m.	10:31 a.m.	
Sounding (ft)			49	50	28		
Temperature (°F)	Top	40	40	40	40	40	T. 40
	Bottom		40	40	40		B. 40
pH	Top	6.2	6.2	6.2	6.1	6.1	T. 6.2
	Bottom		6.2	6.3	6.5		B. 6.3
Specific conductance (micromhos at 25°C)	Top	210	208	201	198	201	T. 204
	Bottom		210	202	186		B. 200
Dissolved oxygen	Top	7.5	7.4	7.7	7.5	7.6	T. 7.5
B. O. D. (5-day, 20°C)	Top	3.9	3.4	3.1	2.2	3.4	T. 3.2
Chloride (Cl)	Top	10	10	10	10	10	T. 10
	Bottom		10	10	10		B. 10
Suspended sediment	Top	Composite					T. 21

Location League Island, Philadelphia, Pa. Date April 1, 1952 Sampling study No. 32
Weather Clear Water discharge at Trenton (cfs) 20,800

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:35 p.m.	12:38 p.m.	12:41 p.m.	12:44 p.m.	12:47 p.m.	
Sounding (ft)			46	48	41		
Temperature (°F)	Top	50	49	49	49	49	T. 49
	Bottom		51	51	50		B. 51
pH	Top	6.2	6.1	6.3	6.1	6.1	T. 6.2
	Bottom		6.3	6.5	6.1		B. 6.3
Specific conductance (micromhos at 25°C)	Top	109	107	104	106	111	T. 107
	Bottom		108	105	105		B. 106
Dissolved oxygen	Top	7.5	8.0	8.0	8.2	8.2	T. 8.0
B. O. D. (5-day, 20°C)	Top	2.8	1.9	1.3	.5	.6	T. 1.4
Chloride (Cl)	Top	5.0	5.0	4.0	4.0	5.0	T. 4.6
	Bottom		5.0	5.0	4.0		B. 4.7
Suspended sediment	Top	Composite					T. 15

Table 12. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey, analyses in parts per million

Location League Island, Philadelphia, Pa. Date May 6, 1952 Sampling study No. 33
Weather Clear Water discharge at Trenton (cfs) 16,600

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		2:45 p.m.	2:42 p.m.	2:37 p.m.	2:33 p.m.	2:30 p.m.	
Sounding (ft)			b50	b50	33		
Temperature (°F)	Top	60	60	60	61	61	T. 60
	Bottom		61	61	62		B. 61
pH	Top	6.4	6.3	6.2	6.2	6.2	T. 6.3
	Bottom		6.2	6.3	6.1		B. 6.2
Specific conductance (micromhos at 25°C)	Top	138	133	133	138	143	T. 137
	Bottom		138	132	132		B. 134
Dissolved oxygen	Top	6.5	6.2	6.2	6.2	6.8	T. 6.4
B. O. D. (5-day, 20°C)	Top	2.5	2.0	2.1	1.9	2.8	T. 2.3
Chloride (Cl)	Top	4.0	4.0	4.0	6.0	7.0	T. 5.0
	Bottom		5.0	4.0	5.0		B. 4.7
Suspended sediment	Top	Composite					T. 16

b Exceeded this value.

Location League Island, Philadelphia, Pa. Date June 3, 1952 Sampling study No. 34
Weather Clear Water discharge at Trenton (cfs) 35,600

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		1:50 p.m.	1:52 p.m.	1:54 p.m.	1:56 p.m.	1:58 p.m.	
Sounding (ft)			b50	48	20		
Temperature (°F)	Top	69	68	68	69	69	T. 69
	Bottom		69	69	69		B. 69
pH	Top	6.4	6.5	6.4	6.4	6.4	T. 6.4
	Bottom		6.5	6.6	6.5		B. 6.5
Specific conductance (micromhos at 25°C)	Top	122	116	112	114	116	T. 116
	Bottom		116	113	115		B. 115
Dissolved oxygen	Top	5.9	5.6	6.0	5.8	5.4	T. 5.7
B. O. D. (5-day, 20°C)	Top	4.0	3.0	2.0	2.5	2.6	T. 2.8
Chloride (Cl)	Top	4.0	4.0	4.0	4.0	4.0	T. 4.0
	Bottom		4.0	4.0	4.0		B. 4.0
Suspended sediment	Top	Composite					T. 27

Location League Island, Philadelphia, Pa. Date July 8, 1952 Sampling study No. 35
Weather Overcast Water discharge at Trenton (cfs) 3,280

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		1:06 p.m.	1:08 p.m.	1:10 p.m.	1:12 p.m.	1:14 p.m.	
Sounding (ft)			b50	b50	b50		
Temperature (°F)	Top	80	80	80	80	80	T. 80
	Bottom		79	79	79		B. 79
pH	Top	6.8	6.7	6.8	6.8	6.8	T. 6.8
	Bottom		6.8	6.8	6.8		B. 6.8
Specific conductance (micromhos at 25°C)	Top	271	276	267	267	267	T. 270
	Bottom		264	264	264		B. 264
Dissolved oxygen	Top	.0	.1	.2	.1	.1	T. .1
B. O. D. (5-day, 20°C)	Top	8.4	7.2	7.2	4.8	1.2	T. 5.8
Chloride (Cl)	Top	14	14	14	14	13	T. 14
	Bottom		14	13	14		B. 14
Suspended sediment	Top	Composite					T. 82

b Exceeded this value.

Location League Island, Philadelphia, Pa. Date August 7, 1952 Sampling study No. 36
Weather Cloudy Water discharge at Trenton (cfs) 5,920

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:39 a.m.	11:41 a.m.	11:43 a.m.	11:45 a.m.	11:47 a.m.	
Sounding (ft)			45	b50	46		
Temperature (°F)	Top	82	83	83	83	83	T. 83
	Bottom		82	82	82		B. 82
pH	Top	6.6	6.6	6.6	6.6	6.6	T. 6.6
	Bottom		6.6	6.6	6.6		B. 6.6
Specific conductance (micromhos at 25°C)	Top	223	272	237	224	229	T. 237
	Bottom		235	231	224		B. 230
Dissolved oxygen	Top	.1	.0	.0	1.1	.4	T. .3
B. O. D. (5-day, 20°C)	Top	5.7	6.8	6.5	4.6	2.1	T. 5.1
Chloride (Cl)	Top	13	14	13	13	13	T. 13
	Bottom		14	12	12		B. 13
Suspended sediment	Top	Composite					T. 42

b Exceeded this value.

Table 12. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location League Island, Philadelphia, Pa. Date September 4, 1952 Sampling study No. 37
Weather Clear Water discharge at Trenton (cfs) 27,100

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		1:14 p.m.	1:14 p.m.	1:17 p.m.	1:19 p.m.	1:21 p.m.	
Sounding (ft)			b50	b50	43		
Temperature (°F)	Top	77	77	77	77	77	T. 77
	Bottom		77	77	77		B. 77
pH	Top	6.6	6.6	6.4	6.5	6.6	T. 6.5
	Bottom		6.6	6.6	6.4		B. 6.6
Specific conductance (micromhos at 25°C)	Top	197	196	192	194	194	T. 195
	Bottom		195	194	197		B. 195
Dissolved oxygen	Top	2.7	3.0	3.4	3.3	3.9	T. 3.3
B. O. D. (5-day, 20°C)	Top	1.0	.2	1.2	1.0	.8	T. .8
Chloride (Cl)	Top	9.5	9.5	9.0	10	9.5	T. 9.5
	Bottom		9.8	10	10		B. 9.7
Suspended sediment	Top	Composite					T. 7

b Exceeded this value.

Location League Island, Philadelphia, Pa. Date October 7, 1952 Sampling study No. 38
Weather Slightly Cloudy Water discharge at Trenton (cfs) 4,120

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		2:00 p.m.	2:03 p.m.	2:06 p.m.	2:09 p.m.	2:12 p.m.	
Sounding (ft)			46	b50	b50		
Temperature (°F)	Top	69	69	69	68	67	T. 68
	Bottom		68	68	68		B. 68
pH	Top	6.6	6.4	6.7	6.7	6.4	T. 6.6
	Bottom		6.5	6.7	6.7		B. 6.6
Specific conductance (micromhos at 25°C)	Top	285	265	285	285	274	T. 279
	Bottom		272	283	293		B. 283
Dissolved oxygen	Top	2.7	1.7	1.5	1.5	1.6	T. 1.8
B. O. D. (5-day, 20°C)	Top	3.5	3.7	6.7	4.9	6.6	T. 5.1
Chloride (Cl)	Top	17	16	16	16	16	T. 16
	Bottom		16	16	16		B. 16
Suspended sediment	Top	Composite					T. 14

b Exceeded this value.

Location League Island, Philadelphia, Pa. Date November 7, 1952 Sampling study No. 39
Weather Clear Water discharge at Trenton (cfs) 2,820

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:55 a.m.	10:50 a.m.	10:40 a.m.	10:30 a.m.	10:25 a.m.	
Sounding (ft)			44	48	16		
Temperature (°F)	Top	51	51	51	51	51	T. 51
	Bottom		51	51	51		B. 51
pH	Top	6.6	6.7	6.8	6.5	6.3	T. 6.6
	Bottom		6.5	6.4	6.3		B. 6.4
Specific conductance (micromhos at 25°C)	Top	369	372	343	366	360	T. 362
	Bottom		362	353	356		B. 357
Dissolved oxygen	Top	2.2	1.8	2.0	4.7	3.0	T. 2.7
B. O. D. (5-day, 20°C)	Top	10.1	7.7	6.9	10.0	7.5	T. 8.4
Chloride (Cl)	Top	26	28	26	30	30	T. 28
	Bottom		28	27	30		B. 28
Suspended sediment	Top	Composite					T. 12

Location League Island, Philadelphia, Pa. Date December 5, 1952 Sampling study No. 40
Weather Rain Water discharge at Trenton (cfs) 12,600

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		2:18 p.m.	2:21 p.m.	2:24 p.m.	2:27 p.m.	2:30 p.m.	
Sounding (ft)			b50	b50	49		
Temperature (°F)	Top	48	48	46	48	47	T. 47
	Bottom		48	47	48		B. 48
pH	Top	6.4	6.3	6.2	6.2	6.1	T. 6.2
	Bottom		6.3	6.2	—		B. 6.2
Specific conductance (micromhos at 25°C)	Top	191	179	173	167	162	T. 174
	Bottom		188	173	—		B. 180
Dissolved oxygen	Top	6.2	6.3	5.7	6.3	6.1	T. 6.1
B. O. D. (5-day, 20°C)	Top	6.1	6.2	5.3	6.0	4.6	T. 5.6
Chloride (Cl)	Top	9.5	9.0	9.0	9.0	8.5	T. 9.0
	Bottom		9.0	8.5	—		B. 8.8
Suspended sediment	Top	Composite					T. 20

b Exceeded this value.

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Table 13. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Eddystone, Pa. Date August 3, 1949 Sampling study No. 1
Weather Trace of Rain Water discharge at Trenton (cfs) 2,700

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		--	--	--	--	--	
Sounding (ft)			45	--	38		
Temperature (°F)	Top	86	85	84	84	84	T. 85
	Bottom		84	--	84		B. 84
pH	Top	6.1	5.9	6.1	5.9	5.8	T. 6.0
	Bottom		6.1	--	6.0		B. 6.0
Specific conductance (micromhos at 25°C)	Top	400	405	382	397	397	T. 396
	Bottom		363	--	397		B. 380
Dissolved oxygen	Top	.7	1.0	1.0	1.1	.8	T. .9
B. O. D. (5-day, 20°C)	Top	6.0	5.0	6.0	4.0	5.0	T. 5.2
Chloride (Cl)	Top	44	47	40	44	47	T. 44
	Bottom		40	--	45		B. 42
Suspended sediment	Top	Composite					T. --

Location Eddystone, Pa. Date September 7, 1949 Sampling study No. 2
Weather Trace of Rain Water discharge at Trenton (cfs) 3,810

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		--	--	12:15 p.m.	--	--	
Sounding (ft)			29	23	50		
Temperature (°F)	Top	78	78	77	76	77	T. 77
	Bottom		76	76	77		B. 76
pH	Top	6.4	6.3	6.4	6.3	6.5	T. 6.4
	Bottom		6.3	6.3	6.2		B. 6.3
Specific conductance (micromhos at 25°C)	Top	1,290	1,620	1,780	1,630	1,230	T. 1,510
	Bottom		1,720	1,780	1,830		B. 1,780
Dissolved oxygen	Top	1.5	1.3	2.0	1.7	3.0	T. 1.9
B. O. D. (5-day, 20°C)	Top	9.0	9.8	15.5	13.2	13.5	T. 12.2
Chloride (Cl)	Top	295	400	445	400	290	T. 366
	Bottom		430	450	465		B. 448
Suspended sediment	Top	Composite					T. 81

Location Eddystone, Pa. Date October 5, 1949 Sampling study No. 3
Weather Occasional Rain Water discharge at Trenton (cfs) 3,280

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		--	--	12:00 n.	--	--	
Sounding (ft)			30	b50	40		
Temperature (°F)	Top	70	70	70	70	70	T. 70
	Bottom		70	69	70		B. 70
pH	Top	6.5	6.4	6.3	6.3	6.4	T. 6.4
	Bottom		6.3	6.3	6.3		B. 6.3
Specific conductance (micromhos at 25°C)	Top	1,420	1,890	2,170	1,700	1,710	T. 1,780
	Bottom		2,170	2,350	2,150		B. 2,220
Dissolved oxygen	Top	.9	1.7	2.1	1.3	1.2	T. 1.4
B. O. D. (5-day, 20°C)	Top	4.1	5.7	4.9	5.7	5.0	T. 5.1
Chloride (Cl)	Top	330	475	560	420	425	T. 442
	Bottom		580	630	565		B. 592
Suspended sediment	Top	Composite					T. 32

b Exceeded this value.

Location Eddystone, Pa. Date November 2, 1949 Sampling study No. 4
Weather Clear Water discharge at Trenton (cfs) 3,430

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		--	--	1:00 p.m.	--	--	
Sounding (ft)			39	48	45		
Temperature (°F)	Top	60	60	60	59	58	T. 59
	Bottom		60	59	59		B. 59
pH	Top	6.4	6.4	6.5	6.5	6.4	T. 6.4
	Bottom		6.4	6.4	6.5		B. 6.4
Specific conductance (micromhos at 25°C)	Top	2,290	2,660	3,160	2,010	2,370	T. 2,500
	Bottom		3,490	3,530	3,220		B. 3,410
Dissolved oxygen	Top	2.0	2.8	2.6	3.3	2.6	T. 2.7
B. O. D. (5-day, 20°C)	Top	7.2	6.3	3.0	8.1	4.8	T. 5.9
Chloride (Cl)	Top	590	715	875	520	620	T. 664
	Bottom		980	995	890		B. 955
Suspended sediment	Top	Composite					T. 35

Table 13. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Eddystone, Pa. Date December 2, 1949 Sampling study No. 5
Weather Water discharge at Trenton (cfs)

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		—	—	11:30 a.m.	—	—	
Sounding (ft)			29	40	40		
Temperature (°F)	Top	45	45	45	45	45	T. 45
	Bottom		45	45	45		B. 45
pH	Top	6.3	6.3	6.4	6.3	6.4	T. 6.3
	Bottom		6.1	6.1	6.1		B. 6.1
Specific conductance (micromhos at 25°C)	Top	883	1,350	1,490	1,160	1,200	T. 1,220
	Bottom		1,620	1,780	1,640		B. 1,680
Dissolved oxygen	Top	3.7	3.8	5.0	5.6	5.0	T. 4.6
B. O. D. (5-day, 20°C)	Top	2.5	2.0	3.0	3.0	1.0	T. 2.3
Chloride (Cl)	Top	170	290	330	250	265	T. 261
	Bottom		380	425	385		B. 297
Suspended sediment	Top	Composite					T. 55

Location Eddystone, Pa. Date January 5, 1950 Sampling study No. 6
Weather Cloudy Water discharge at Trenton (cfs) 11,100

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		2:25 p.m.	2:29 p.m.	2:31 p.m.	2:33 p.m.	2:35 p.m.	
Sounding (ft)			30	45	—		
Temperature (°F)	Top	50	49	48	47	49	T. 49
	Bottom		48	46	—		B. 47
pH	Top	6.3	6.2	6.2	6.2	6.2	T. 6.2
	Bottom		6.1	6.0	—		B. 6.0
Specific conductance (micromhos at 25°C)	Top	193	192	168	162	164	T. 176
	Bottom		176	171	—		B. 174
Dissolved oxygen	Top	6.7	6.7	7.0	7.5	7.3	T. 7.0
B. O. D. (5-day, 20°C)	Top	4.5	4.0	3.0	4.0	4.0	T. 3.9
Chloride (Cl)	Top	10	12	10	10	9.0	T. 10
	Bottom		12	10	—		B. 11
Suspended sediment	Top	Composite					T. 60

Location Eddystone, Pa. Date February 3, 1950 Sampling study No. 7
Weather Clear Water discharge at Trenton (cfs) 14,300

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:20 a.m.	11:22 a.m.	11:24 a.m.	11:27 a.m.	11:30 a.m.	
Sounding (ft)			38	45	b50		
Temperature (°F)	Top	41	41	40	41	40	T. 41
	Bottom		41	42	41		B. 42
pH	Top	6.4	6.5	6.5	6.4	6.5	T. 6.5
	Bottom		6.4	6.4	6.3		B. 6.4
Specific conductance (micromhos at 25°C)	Top	208	205	199	191	185	T. 198
	Bottom		205	200	193		B. 199
Dissolved oxygen	Top	6.5	6.9	6.5	6.0	7.0	T. 6.4
B. O. D. (5-day, 20°C)	Top	8.0	3.5	4.5	2.5	3.5	T. 4.4
Chloride (Cl)	Top	13	12	12	12	11	T. 12
	Bottom		12	11	11		B. 11
Suspended sediment	Top	Composite					T. 79

b Exceeded this value.

Location Eddystone, Pa. Date March 7, 1950 Sampling study No. 8
Weather Partly Cloudy Water discharge at Trenton (cfs) 7,260

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:48 a.m.	11:45 a.m.	11:41 a.m.	11:40 a.m.	11:35 a.m.	
Sounding (ft)			29	47	33		
Temperature (°F)	Top	36	37	36	38	38	T. 37
	Bottom		36	37	37		B. 37
pH	Top	6.6	6.5	6.6	6.6	6.7	T. 6.6
	Bottom		6.5	6.5	6.5		B. 6.5
Specific conductance (micromhos at 25°C)	Top	212	204	202	202	202	T. 204
	Bottom		206	204	204		B. 205
Dissolved oxygen	Top	8.5	8.7	9.2	9.2	9.1	T. 8.9
B. O. D. (5-day, 20°C)	Top	4.6	3.8	4.3	3.8	3.7	T. 4.0
Chloride (Cl)	Top	12	12	12	12	12	T. 12
	Bottom		12	12	12		B. 12
Suspended sediment	Top	Composite					T. 48

Table 13.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.--Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Eddystone, Pa. Date April 3, 1950 Sampling study No. 9
Weather Light Rain Water discharge at Trenton (cfs) 32,300

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:10 p.m.	12:14 p.m.	12:20 p.m.	12:30 p.m.	12:40 p.m.	
Sounding (ft)			28	43	45		
Temperature (°F)	Top	46	45	45	45	46	T. 45
	Bottom		45	45	45		B. 45
pH	Top	6.5	6.5	6.5	6.5	6.5	T. 6.5
	Bottom		6.4	6.4	6.5		B. 6.4
Specific conductance (micromhos at 25°C)	Top	119	106	97.3	91.9	94.3	T. 102
	Bottom		108	98.8	91.7		B. 99.5
Dissolved oxygen	Top	8.3	9.2	9.7	9.8	9.3	T. 9.3
B. O. D. (5-day, 20°C)	Top	4.3	4.2	3.9	3.7	3.2	T. 3.9
Chloride (Cl)	Top	6.0	6.0	6.0	6.0	4.0	T. 5.6
	Bottom		5.0	5.0	4.0		B. 4.7
Suspended sediment	Top	Composite					T. 70

Location Eddystone, Pa. Date May 3, 1950 Sampling study No. 10
Weather Cloudy Water discharge at Trenton (cfs) 17,000

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		2:40 p.m.	2:43 p.m.	2:48 p.m.	2:55 p.m.	3:00 p.m.	
Sounding (ft)			30	b50	43		
Temperature (°F)	Top	57	57	55	56	56	T. 56
	Bottom		55	55	55		B. 55
pH	Top	6.6	6.5	6.5	6.5	6.5	T. 6.5
	Bottom		6.5	6.4	6.5		B. 6.5
Specific conductance (micromhos at 25°C)	Top	186	175	174	171	174	T. 176
	Bottom		176	174	173		B. 174
Dissolved oxygen	Top	3.1	3.4	3.9	3.6	4.2	T. 3.6
B. O. D. (5-day, 20°C)	Top	9.4	6.9	7.2	6.7	6.5	T. 7.3
Chloride (Cl)	Top	10	10	10	9.0	9.0	T. 9.6
	Bottom		8.0	9.0	9.0		B. 8.7
Suspended sediment	Top	Composite					T. 38

b Exceeded this value.

Location Eddystone, Pa. Date June 5, 1950 Sampling study No. 11
Weather Clear Water discharge at Trenton (cfs) 18,500

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:30 a.m.	10:35 a.m.	10:37 a.m.	10:41 a.m.	10:44 a.m.	
Sounding (ft)			45	43	38		
Temperature (°F)	Top	68	68	68	68	68	T. 68
	Bottom		69	68	68		B. 68
pH	Top	6.2	6.4	6.3	6.4	6.3	T. 6.3
	Bottom		6.2	6.2	6.1		B. 6.2
Specific conductance (micromhos at 25°C)	Top	170	157	156	151	153	T. 157
	Bottom		160	157	155		B. 157
Dissolved oxygen	Top	2.3	2.3	2.2	3.1	3.0	T. 2.6
B. O. D. (5-day, 20°C)	Top	2.1	.3	1.8	.5	.6	T. 1.1
Chloride (Cl)	Top	8.0	8.0	7.0	7.0	7.0	T. 7.4
	Bottom		8.0	8.0	8.0		B. 8.0
Suspended sediment	Top	Composite					T. 25

Location Eddystone, Pa. Date July 5, 1950 Sampling study No. 12
Weather Cloudy Water discharge at Trenton (cfs) 5,630

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:20 a.m.	10:25 a.m.	10:30 a.m.	10:35 a.m.	10:40 a.m.	
Sounding (ft)			35	44	29		
Temperature (°F)	Top	79	79	79	79	79	T. 79
	Bottom		77	79	79		B. 78
pH	Top	7.2	6.5	6.3	6.4	6.3	T. 6.5
	Bottom		6.3	6.3	6.1		B. 6.2
Specific conductance (micromhos at 25°C)	Top	221	216	212	216	219	T. 217
	Bottom		216	214	216		B. 215
Dissolved oxygen	Top	1.5	1.7	1.7	1.8	1.6	T. 1.7
B. O. D. (5-day, 20°C)	Top	4.2	4.2	4.2	3.5	3.7	T. 4.0
Chloride (Cl)	Top	15	13	13	12	13	T. 13
	Bottom		12	12	12		B. 12
Suspended sediment	Top	Composite					T. 36

Table 13.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.--Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Eddystone, Pa. Date August 1, 1950 Sampling study No. 13
Weather Cloudy Water discharge at Trenton (cfs) 4,710

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:15 a.m.	10:17 a.m.	10:20 a.m.	10:22 a.m.	10:25 a.m.	
Sounding (ft)			24	46	30		
Temperature (°F)	Top	80	80	80	80	80	T. 80
	Bottom		80	80	80		B. 80
pH	Top	6.2	6.3	6.2	6.3	6.2	T. 6.2
	Bottom		6.4	6.3	6.4		B. 6.4
Specific conductance (micromhos at 25°C)	Top	234	236	225	224	229	T. 230
	Bottom		244	234	232		B. 237
Dissolved oxygen	Top	.8	.9	.5	.9	1.0	T. .8
B. O. D. (5-day, 20°C)	Top	3.8	3.0	2.3	1.8	2.2	T. 2.6
Chloride (Cl)	Top	14	15	16	15	16	T. 15
	Bottom		13	14	14		B. 14
Suspended sediment	Top	Composite					T. 47

Location Eddystone, Pa. Date September 5, 1950 Sampling study No. 14
Weather Fair Water discharge at Trenton (cfs) 5,800

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:35 p.m.	12:32 p.m.	12:30 p.m.	12:25 p.m.	12:20 p.m.	
Sounding (ft)			47	28	18		
Temperature (°F)	Top	78	78	78	78	78	T. 78
	Bottom		78	78	78		B. 78
pH	Top	6.4	6.4	6.5	6.5	6.6	T. 6.5
	Bottom		6.3	6.4	6.4		B. 6.4
Specific conductance (micromhos at 25°C)	Top	304	305	313	318	320	T. 312
	Bottom		305	316	319		B. 313
Dissolved oxygen	Top	.5	1.0	1.0	1.0	1.1	T. .9
B. O. D. (5-day, 20°C)	Top	6.0	7.8	6.9	6.0	4.8	T. 6.3
Chloride (Cl)	Top	22	22	24	25	26	T. 24
	Bottom		23	25	26		B. 25
Suspended sediment	Top	Composite					T. 34

Location Eddystone, Pa. Date October 2, 1950 Sampling study No. 15
Weather Clear Water discharge at Trenton (cfs) 3,020

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:55 p.m.	1:00 p.m.	1:05 p.m.	1:10 p.m.	1:15 p.m.	
Sounding (ft)			24	42	b50		
Temperature (°F)	Top	69	68	68	68	68	T. 68
	Bottom		68	68	68		B. 68
pH	Top	6.2	6.3	6.3	6.4	6.4	T. 6.3
	Bottom		6.3	6.2	6.2		B. 6.2
Specific conductance (micromhos at 25°C)	Top	330	311	305	314	325	T. 317
	Bottom		310	296	299		B. 302
Dissolved oxygen	Top	.6	.4	.7	.8	.8	T. .7
B. O. D. (5-day, 20°C)	Top	3.0	1.0	2.8	2.9	3.8	T. 2.7
Chloride (Cl)	Top	28	24	24	26	26	T. 26
	Bottom		24	24	24		B. 24
Suspended sediment	Top	Composite					T. 77

b Exceeded this value.

Location Eddystone, Pa. Date November 1, 1950 Sampling study No. 16
Weather Clear Water discharge at Trenton (cfs) 2,600

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		1:43 p.m.	1:40 p.m.	1:37 p.m.	1:34 p.m.	1:30 p.m.	
Sounding (ft)			20	49	22		
Temperature (°F)	Top	64	64	64	65	66	T. 65
	Bottom		65	65	65		B. 65
pH	Top	6.6	6.6	6.5	6.4	6.3	T. 6.5
	Bottom		6.5	6.2	6.1		B. 6.3
Specific conductance (micromhos at 25°C)	Top	531	484	509	603	652	T. 556
	Bottom		483	495	581		B. 520
Dissolved oxygen	Top	.6	.6	1.2	.7	1.8	T. 1.0
B. O. D. (5-day, 20°C)	Top	6.3	6.6	7.5	6.1	6.6	T. 6.6
Chloride (Cl)	Top	60	50	55	80	100	T. 69
	Bottom		50	55	80		B. 62
Suspended sediment	Top	Composite					T. 77

Table 13. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Eddystone, Pa. Date December 5, 1950 Sampling study No. 17
Weather Clear Water discharge at Trenton (cfs) 83,500

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:25 p.m.	12:20 p.m.	12:16 p.m.	12:13 p.m.	12:10 p.m.	
Sounding (ft)			36	b50	27		
Temperature (°F)	Top	43	43	43	43	43	T. 43
	Bottom		42	42	42		B. 42
pH	Top	6.0	6.1	6.0	6.0	6.0	T. 6.0
	Bottom		6.0	6.0	6.1		B. 6.0
Specific conductance (micromhos at 25°C)	Top	179	167	156	156	171	T. 162
	Bottom		163	162	202		B. 176
Dissolved oxygen	Top	9.9	10.4	11.3	10.6	10.7	T. 10.6
B. O. D. (5-day, 20°C)	Top	6.8	6.4	6.9	7.5	6.5	T. 6.8
Chloride (Cl)	Top	8.0	6.0	6.0	6.0	8.0	T. 6.8
	Bottom		8.0	6.0	18		B. 11
Suspended sediment	Top	Composite					T. 83

b Exceeded this value.

Location Eddystone, Pa. Date January 2, 1951 Sampling study No. 18
Weather Overcast Water discharge at Trenton (cfs) 8,670

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:34 a.m.	11:30 a.m.	11:26 a.m.	11:23 a.m.	11:20 a.m.	
Sounding (ft)			35	47	39		
Temperature (°F)	Top	36	36	35	36	36	T. 36
	Bottom		36	36	36		B. 36
pH	Top	6.5	6.4	6.3	6.4	6.4	T. 6.4
	Bottom		6.3	6.6	6.3		B. 6.4
Specific conductance (micromhos at 25°C)	Top	212	212	208	205	204	T. 208
	Bottom		210	209	207		B. 209
Dissolved oxygen	Top	6.0	6.2	6.3	6.5	6.4	T. 6.3
B. O. D. (5-day, 20°C)	Top	5.7	6.0	6.1	4.7	5.0	T. 5.5
Chloride (Cl)	Top	10	9.0	8.0	8.0	8.0	T. 8.6
	Bottom		10	8.0	10		B. 9.3
Suspended sediment	Top	Composite					T. 66

Location Eddystone, Pa. Date March 1, 1951 Sampling study No. 19
Weather Rain Water discharge at Trenton (cfs) 21,000

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:15 a.m.	11:20 a.m.	11:25 a.m.	11:30 a.m.	11:35 a.m.	
Sounding (ft)			28	29	30		
Temperature (°F)	Top	41	41	41	41	41	T. 41
	Bottom		41	40	40		B. 40
pH	Top	6.4	6.5	6.5	6.5	6.5	T. 6.5
	Bottom		6.3	6.4	6.4		B. 6.4
Specific conductance (micromhos at 25°C)	Top	154	134	132	128	129	T. 135
	Bottom		137	135	129		B. 134
Dissolved oxygen	Top	10.2	10.6	10.9	10.9	10.9	T. 10.7
B. O. D. (5-day, 20°C)	Top	6.7	5.5	6.0	5.9	6.0	T. 6.0
Chloride (Cl)	Top	8.0	6.0	6.0	6.0	6.0	T. 6.4
	Bottom		7.0	6.0	6.0		B. 6.3
Suspended sediment	Top	Composite					T. 84

Location Eddystone, Pa. Date April 3, 1951 Sampling study No. 20
Weather Overcast Water discharge at Trenton (cfs) 53,100

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:10 a.m.	11:08 a.m.	11:06 a.m.	11:03 a.m.	11:00 a.m.	
Sounding (ft)			30	b50	31		
Temperature (°F)	Top	48	48	47	47	47	T. 47
	Bottom		46	47	47		B. 47
pH	Top	6.8	6.8	6.8	6.9	6.8	T. 6.8
	Bottom		6.8	6.8	6.8		B. 6.8
Specific conductance (micromhos at 25°C)	Top	104	87.2	74.3	74.3	74.7	T. 82.9
	Bottom		86.1	74.0	74.3		B. 78.1
Dissolved oxygen	Top	9.9	10.0	10.6	10.0	10.4	T. 10.2
B. O. D. (5-day, 20°C)	Top	4.2	2.8	3.2	2.2	3.2	T. 3.1
Chloride (Cl)	Top	4.0	4.0	4.0	4.0	4.0	T. 4.0
	Bottom		4.0	4.0	4.0		B. 4.0
Suspended sediment	Top	Composite					T. 66

b Exceeded this value.

Table 13. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Eddystone, Pa. Date May 2, 1951 Sampling study No. 21
Weather Clear Water discharge at Trenton (cfs) 12,400

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:45 a.m.	10:40 a.m.	10:35 a.m.	10:30 a.m.	10:25 a.m.	
Sounding (ft)			28	b50	46		
Temperature (°F)	Top	63	63	63	63	64	T. 63
	Bottom		63	63	63		B. 63
pH	Top	6.6	6.6	6.6	6.6	6.6	T. 6.6
	Bottom		6.6	6.6	6.6		B. 6.6
Specific conductance (micromhos at 25°C)	Top	195	181	177	176	179	T. 182
	Bottom		182	177	177		B. 179
Dissolved oxygen	Top	2.4	2.8	3.4	3.0	3.5	T. 3.0
B. O. D. (5-day, 20°C)	Top	2.8	2.2	2.6	3.0	3.5	T. 2.8
Chloride (Cl)	Top	11	11	9.0	9.0	9.0	T. 9.8
	Bottom		10	9.0	9.0		B. 9.3
Suspended sediment	Top	Composite					T. 24

b Exceeded this value.

Location Eddystone, Pa. Date June 8, 1951 Sampling study No. 22
Weather Rain Water discharge at Trenton (cfs) 7,520

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:30 a.m.	11:32 a.m.	11:34 a.m.	11:36 a.m.	11:38 a.m.	
Sounding (ft)			22	47	44		
Temperature (°F)	Top	72	72	72	72	72	T. 72
	Bottom		72	72	72		B. 72
pH	Top	6.6	6.6	6.6	6.6	6.6	T. 6.6
	Bottom		6.5	6.5	6.5		B. 6.5
Specific conductance (micromhos at 25°C)	Top	229	229	223	223	226	T. 226
	Bottom		232	224	224		B. 227
Dissolved oxygen	Top	1.5	.7	.6	1.0	1.1	T. 1.0
B. O. D. (5-day, 20°C)	Top	3.0	2.3	2.8	2.0	1.5	T. 2.3
Chloride (Cl)	Top	12	13	12	13	12	T. 12
	Bottom		12	12	12		B. 12
Suspended sediment	Top	Composite					T. 41

Location Eddystone, Pa. Date July 6, 1951 Sampling study No. 23
Weather Clear Water discharge at Trenton (cfs) 9,250

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:35 a.m.	11:37 a.m.	11:39 a.m.	11:41 a.m.	11:43 a.m.	
Sounding (ft)			35	48	45		
Temperature (°F)	Top	78	78	78	78	78	T. 78
	Bottom		77	77	77		B. 77
pH	Top	6.6	6.5	6.9	6.6	6.7	T. 6.7
	Bottom		6.6	6.5	6.6		B. 6.6
Specific conductance (micromhos at 25°C)	Top	235	225	256	224	239	T. 236
	Bottom		224	224	231		B. 226
Dissolved oxygen	Top	2.1	2.1	2.1	2.4	2.5	T. 2.2
B. O. D. (5-day, 20°C)	Top	.4	.4	.2	.1	.0	T. .2
Chloride (Cl)	Top	13	13	13	13	13	T. 13
	Bottom		13	13	13		B. 13
Suspended sediment	Top	Composite					T. 11

Location Eddystone, Pa. Date August 2, 1951 Sampling study No. 24
Weather Clear Water discharge at Trenton (cfs) 10,300

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:55 a.m.	11:57 a.m.	11:59 a.m.	12:01 p.m.	12:03 p.m.	
Sounding (ft)			30	49	b50		
Temperature (°F)	Top	81	81	81	81	81	T. 81
	Bottom		81	81	81		B. 81
pH	Top	7.1	6.7	6.7	6.7	6.8	T. 6.8
	Bottom		6.7	6.6	6.7		B. 6.7
Specific conductance (micromhos at 25°C)	Top	247	249	239	245	245	T. 245
	Bottom		249	239	251		B. 246
Dissolved oxygen	Top	2.4	2.6	2.4	3.1	4.8	T. 3.1
B. O. D. (5-day, 20°C)	Top	.0	1.2	2.1	2.4	3.9	T. 1.9
Chloride (Cl)	Top	15	15	15	15	15	T. 15
	Bottom		15	15	15		B. 15
Suspended sediment	Top	Composite					T. 31

b Exceeded this value.

Table 13. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Eddystone, Pa. Date September 5, 195[illegible] Sampling study No. 25
Weather Cloudy Water discharge at Trenton (cfs) 3,680

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		[illegible] a.m.	11:[illegible] a.m.	11:[illegible] a.m.	11:[illegible] a.m.	11:[illegible] a.m.	
Sounding (ft)			[illegible]	[illegible]	48		
Temperature (°F)	Top	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	T. 78
	Bottom		78	78	78		B. 78
pH	Top	6.5	6.3	6.4	6.5	6.4	T. 6.4
	Bottom		6.5	6.3	6.4		B. 6.4
Specific conductance (micromhos at 25°C)	Top	317	3[illegible]	317	31[illegible]	323	T. 318
	Bottom		325	345	298		B. 316
Dissolved oxygen	Top	.3	.6	.6	.4	.7	T. .5
B. O. D. (5-day, 20°C)	Top	8.0	8.3	6.5	6.[illegible]	6.[illegible]	T. 7.3
Chloride (Cl)	Top	18	18	18	18	18	T. 18
	Bottom		18	18	18	18	B. 17
Suspended sediment	Top	Composite					T. 23

Location Eddystone, Pa. Date October 1, 1951 Sampling study No. 26
Weather Clear Water discharge at Trenton (cfs) 3,040

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		1:47 p.m.	1:44 p.m.	1:42 p.m.	1:40 p.m.	1:38 p.m.	
Sounding (ft)			35	b5'	36		
Temperature (°F)	Top	72	72	72	72	72	T. 72
	Bottom		71	71	71		B. 71
pH	Top	6.5	6.4	6.4	6.6	6.4	T. 6.5
	Bottom		6.3	6.[illegible]	6.4		B. 6.4
Specific conductance (micromhos at 25°C)	Top	664	1,210	1,040	866	865	T. 933
	Bottom		1,500	1,140	1,190		B. 1,280
Dissolved oxygen	Top	1.7	1.6	1.7	2.0	2.0	T. 1.8
B. O. D. (5-day, 20°C)	Top	5.4	8.7	10.2	5.4	6.9	T. 7.3
Chloride (Cl)	Top	110	255	200	150	155	T. 174
	Bottom		330	225	230		B. 262
Suspended sediment	Top	Composite					T. 38

b Exceeded this value.

Location Eddystone, Pa. Date November 5, 1951 Sampling study No. 27
Weather Clear Water discharge at Trenton (cfs) 29,500

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		1:15 p.m.	1:18 p.m.	1:21 p.m.	1:24 p.m.	1:27 p.m.	
Sounding (ft)			25	40	b50		
Temperature (°F)	Top	52	51	51	50	50	T. 51
	Bottom		51	51	50		B. 51
pH	Top	6.5	6.6	6.5	6.6	6.5	T. 6.5
	Bottom		6.4	7.5	6.6		B. 6.8
Specific conductance (micromhos at 25°C)	Top	223	204	196	192	211	T. 205
	Bottom		207	198	190		B. 198
Dissolved oxygen	Top	4.6	6.1	6.6	6.1	5.0	T. 5.7
B. O. D. (5-day, 20°C)	Top	3.3	3.0	3.2	2.8	3.0	T. 3.1
Chloride (Cl)	Top	11	10	10	9.0	12	T. 10
	Bottom		9.0	10	10		B. 9.7
Suspended sediment	Top	Composite					T. 27

b Exceeded this value.

Location Eddystone, Pa. Date December 4, 1951 Sampling study No. 28
Weather Cloudy Water discharge at Trenton (cfs) 11,100

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		1:10 p.m.	1:15 p.m.	1:18 p.m.	1:20 p.m.	1:26 p.m.	
Sounding (ft)			25	35	45		
Temperature (°F)	Top	44	44	44	44	43	T. 44
	Bottom		45	45	44		B. 45
pH	Top	6.2	6.3	6.3	6.3	6.3	T. 6.3
	Bottom		6.2	6.3	6.6		B. 6.4
Specific conductance (micromhos at 25°C)	Top	202	202	196	195	192	T. 197
	Bottom		201	201	196		B. 199
Dissolved oxygen	Top	5.3	5.8	5.8	6.3	5.7	T. 5.8
B. O. D. (5-day, 20°C)	Top	5.2	4.6	4.3	4.6	5.7	T. 4.9
Chloride (Cl)	Top	10	9.0	10	9.0	8.0	T. 9.2
	Bottom		10	10	9.0		B. 9.7
Suspended sediment	Top	Composite					T. 23

Table 13. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Eddystone, Pa. Date January 4, 1952 Sampling study No. 29
Weather Light Rain Water discharge at Trenton (cfs) 21,800

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		1:24 p.m.	1:21 p.m.	1:18 p.m.	1:16 p.m.	1:12 p.m.	
Sounding (ft)			44	48	40		
Temperature (°F)	Top	38	38	38	38	38	T. 38
	Bottom		39	38	39		B. 39
pH	Top	6.7	6.6	6.6	6.9	6.6	T. 6.7
	Bottom		6.6	6.6	6.7		B. 6.6
Specific conductance (micromhos at 25°C)	Top	162	153	156	156	156	T. 157
	Bottom		162	158	156		B. 159
Dissolved oxygen	Top	10.3	10.6	9.9	10.3	11.2	T. 10.5
B. O. D. (5-day, 20°C)	Top	4.5	3.9	5.5	4.5	6.4	T. 5.0
Chloride (Cl)	Top	7.0	7.0	7.0	7.0	6.0	T. 6.8
	Bottom		7.0	6.0	6.0		B. 6.3
Suspended sediment	Top	Composite					T. 25

Location Eddystone, Pa. Date February 6, 1952 Sampling study No. 30
Weather Clear Water discharge at Trenton (cfs) 43,400

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:00 a.m.	11:03 a.m.	11:05 a.m.	11:07 a.m.	11:12 a.m.	
Sounding (ft)			30	48	47		
Temperature (°F)	Top	40	40	38	38	39	T. 39
	Bottom		39	38	38		B. 38
pH	Top	6.3	6.3	7.6	6.2	6.2	T. 6.5
	Bottom		6.3	6.2	6.3		B. 6.3
Specific conductance (micromhos at 25°C)	Top	161	166	138	137	137	T. 148
	Bottom		158	137	140		B. 145
Dissolved oxygen	Top	10.7	11.0	11.6	11.8	11.7	T. 11.4
B. O. D. (5-day, 20°C)	Top	3.5	4.3	4.0	4.1	4.5	T. 4.1
Chloride (Cl)	Top	6.0	8.0	5.0	5.0	5.0	T. 5.8
	Bottom		7.0	6.0	5.0		B. 6.0
Suspended sediment	Top	Composite					T. 44

Location Eddystone, Pa. Date March 3, 1952 Sampling study No. 31
Weather Overcast Water discharge at Trenton (cfs) 4,410

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:10 a.m.	11:13 a.m.	11:15 a.m.	11:18 a.m.	11:21 a.m.	
Sounding (ft)			27	32	50		
Temperature (°F)	Top	40	40	40	40	39	T. 40
	Bottom		40	40	40		B. 40
pH	Top	6.2	6.2	6.3	6.2	6.2	T. 6.2
	Bottom		6.3	6.2	6.2		B. 6.2
Specific conductance (micromhos at 25°C)	Top	215	211	208	210	210	T. 211
	Bottom		212	212	211		B. 212
Dissolved oxygen	Top	7.3	7.5	8.0	8.3	8.2	T. 7.9
B. O. D. (5-day, 20°C)	Top	1.9	2.8	3.0	3.2	3.2	T. 2.8
Chloride (Cl)	Top	10	10	10	10	10	T. 10
	Bottom		10	10	10		B. 10
Suspended sediment	Top	Composite					T. 40

Location Eddystone, Pa. Date April 1, 1952 Sampling study No. 32
Weather Overcast Water discharge at Trenton (cfs) 20,800

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:36 a.m.	11:38 a.m.	11:41 a.m.	11:44 a.m.	11:47 a.m.	
Sounding (ft)			24	34	42		
Temperature (°F)	Top	50	49	49	49	49	T. 49
	Bottom		50	50	50		B. 50
pH	Top	6.3	6.3	6.4	6.2	6.2	T. 6.3
	Bottom		7.5	6.5	6.2		B. 6.7
Specific conductance (micromhos at 25°C)	Top	142	132	133	127	125	T. 132
	Bottom		137	132	128		B. 132
Dissolved oxygen	Top	7.3	7.0	7.6	7.6	7.4	T. 7.4
B. O. D. (5-day, 20°C)	Top	1.8	.9	1.5	1.8	.9	T. 1.4
Chloride (Cl)	Top	6.0	5.0	6.0	5.0	5.0	T. 5.4
	Bottom		5.0	5.0	5.0		B. 5.0
Suspended sediment	Top	Composite					T. 34

Table 13. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey, analyses in parts per million

Location Eddystone, Pa. Date May 6, 1952 Sampling study No. 33
Weather Clear Water discharge at Trenton (cfs) 16,600

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		1:01 p.m.	1:03 p.m.	1:05 p.m.	1:08 p.m.	1:10 p.m.	
Sounding (ft)			31	46	48		
Temperature (°F)	Top	60	60	60	60	60	T. 60
	Bottom		61	61	59		B. 60
pH	Top	6.2	6.3	6.3	6.4	6.4	T. 6.3
	Bottom		6.3	6.3	6.1		B. 6.2
Specific conductance (micromhos at 25°C)	Top	159	148	145	147	146	T. 149
	Bottom		153	149	151		B. 150
Dissolved oxygen	Top	5.5	6.2	6.2	6.2	6.2	T. 6.1
B. O. D. (5-day, 20°C)	Top	2.5	1.7	1.7	1.5	1.5	T. 1.8
Chloride (Cl)	Top	6.0	5.0	6.0	5.0	5.0	T. 5.4
	Bottom		5.0	5.0	5.0		B. 5.0
Suspended sediment	Top	Composite					T. 24

Location Eddystone, Pa. Date June 3, 1952 Sampling study No. 34
Weather Clear Water discharge at Trenton (cfs) 35,600

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:25 p.m.	12:27 p.m.	12:29 p.m.	12:32 p.m.	12:34 p.m.	
Sounding (ft)			31	44	40		
Temperature (°F)	Top	69	68	68	68	68	T. 68
	Bottom		70	69	69		B. 69
pH	Top	6.5	6.5	6.5	6.5	6.6	T. 6.5
	Bottom		6.5	6.5	6.6		B. 6.5
Specific conductance (micromhos at 25°C)	Top	142	123	122	121	124	T. 126
	Bottom		131	123	147		B. 134
Dissolved oxygen	Top	4.5	5.3	5.3	5.8	5.1	T. 5.2
B. O. D. (5-day, 20°C)	Top	2.8	1.9	1.9	2.0	1.6	T. 2.0
Chloride (Cl)	Top	5.0	4.0	4.0	4.0	4.0	T. 4.2
	Bottom		4.0	4.0	4.0		B. 4.0
Suspended sediment	Top	Composite					T. 36

Location Eddystone, Pa. Date July 8, 1952 Sampling study No. 35
Weather Overcast Water discharge at Trenton (cfs) 3,280

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:05 p.m.	12:07 p.m.	12:09 p.m.	12:11 p.m.	12:13 p.m.	
Sounding (ft)			29	37	b50		
Temperature (°F)	Top	80	80	80	80	80	T. 80
	Bottom		79	79	79		B. 79
pH	Top	6.7	6.8	6.4	6.8	6.7	T. 6.7
	Bottom		6.8	6.8	6.9		B. 6.8
Specific conductance (micromhos at 25°C)	Top	281	281	258	269	260	T. 270
	Bottom		284	276	279		B. 280
Dissolved oxygen	Top	1.0	.4	.6	.8	1.3	T. .8
B. O. D. (5-day, 20°C)	Top	4.6	4.0	3.0	.0	1.2	T. 2.6
Chloride (Cl)	Top	18	17	16	17	16	T. 17
	Bottom		16	17	16		B. 16
Suspended sediment	Top	Composite					T. 57

b Exceeded this value.

Location Eddystone, Pa. Date August 7, 1952 Sampling study No. 36
Weather Cloudy Water discharge at Trenton (cfs) 5,920

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:35 a.m.	10:37 a.m.	10:39 a.m.	10:41 a.m.	10:43 a.m.	
Sounding (ft)			27	43	40		
Temperature (°F)	Top	82	82	82	82	82	T. 82
	Bottom		82	81	82		B. 82
pH	Top	6.8	6.8	6.8	6.8	6.8	T. 6.8
	Bottom		6.8	6.7	6.8		B. 6.8
Specific conductance (micromhos at 25°C)	Top	243	239	233	235	237	T. 237
	Bottom		245	245	245		B. 245
Dissolved oxygen	Top	.0	.4	.4	1.1	.6	T. .5
B. O. D. (5-day, 20°C)	Top	1.1	2.1	1.8	1.2	2.7	T. 1.8
Chloride (Cl)	Top	13	13	13	13	13	T. 13
	Bottom		14	14	13		B. 14
Suspended sediment	Top	Composite					T. 32

Table 13. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Eddystone, Pa. Date September 4, 1952 Sampling study No. 37
Weather Clear Water discharge at Trenton (cfs) 27,100

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:08 p.m.	12:10 p.m.	12:13 p.m.	12:15 p.m.	12:17 p.m.	
Sounding (ft)			35	b50	b50		
Temperature (°F)	Top	77	77	77	78	76	T. 77
	Bottom		78	77	78		B. 78
pH	Top	6.7	6.6	6.5	6.5	6.5	T. 6.6
	Bottom		6.3	6.5	6.8		B. 6.5
Specific conductance (micromhos at 25°C)	Top	245	236	228	236	231	T. 235
	Bottom		228	235	238		B. 234
Dissolved oxygen	Top	2.2	1.7	1.7	1.4	2.2	T. 1.8
B. O. D. (5-day, 20°C)	Top	1.6	.0	.2	.0	6.4	T. 1.6
Chloride (Cl)	Top	12	11	10	12	11	T. 11
	Bottom		10	11	11		B. 11
Suspended sediment	Top	Composite					T. 14

b Exceeded this value.

Location Eddystone, Pa. Date October 7, 1952 Sampling study No. 38
Weather Partly Cloudy Water discharge at Trenton (cfs) 4,120

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:50 p.m.	12:53 p.m.	12:56 p.m.	12:59 p.m.	1:02 p.m.	
Sounding (ft)			27	34	b50		
Temperature (°F)	Top	68	68	68	68	68	T. 68
	Bottom		68	68	68		B. 68
pH	Top	6.6	6.4	6.6	6.6	6.3	T. 6.5
	Bottom		6.6	6.5	6.7		B. 6.6
Specific conductance (micromhos at 25°C)	Top	285	283	288	288	281	T. 285
	Bottom		304	290	278		B. 291
Dissolved oxygen	Top	1.4	1.0	1.3	1.1	1.7	T. 1.3
B. O. D. (5-day, 20°C)	Top	2.2	2.4	2.3	2.7	1.9	T. 2.3
Chloride (Cl)	Top	21	18	18	18	20	T. 19
	Bottom		18	18	18		B. 18
Suspended sediment	Top	Composite					T. 32

b Exceeded this value.

Location Eddystone, Pa. Date November 14, 1952 Sampling study No. 39
Weather Clear Water discharge at Trenton (cfs) 2,550

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:15 p.m.	12:10 p.m.	12:05 p.m.	12:00 n.	11:50 a.m.	
Sounding (ft)			35	b50	8		
Temperature (°F)	Top	51	51	49	49	50	T. 50
	Bottom		50	50	50		B. 50
pH	Top	6.4	6.3	6.4	6.4	6.2	T. 6.3
	Bottom		6.2	6.2	6.1		B. 6.2
Specific conductance (micromhos at 25°C)	Top	776	1,070	946	925	957	T. 935
	Bottom		1,080	971	935		B. 995
Dissolved oxygen	Top	3.4	3.8	4.2	4.4	4.3	T. 4.0
B. O. D. (5-day, 20°C)	Top	4.4	7.6	7.6	7.6	7.9	T. 7.0
Chloride (Cl)	Top	148	240	202	195	205	T. 198
	Bottom		242	215	202		B. 220
Suspended sediment	Top	Composite					T. 28

b Exceeded this value.

Location Eddystone, Pa. Date December 5, 1952 Sampling study No. 40
Weather Rain Water discharge at Trenton (cfs) 12,600

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		1:23 p.m.	1:26 p.m.	1:29 p.m.	1:32 p.m.	1:35 p.m.	
Sounding (ft)			32	42	b50		
Temperature (°F)	Top	48	48	48	47	48	T. 48
	Bottom		47	47	47		B. 47
pH	Top	—	6.2	6.2	6.2	6.2	T. 6.2
	Bottom		6.2	6.2	6.2		B. 6.2
Specific conductance (micromhos at 25°C)	Top	—	173	166	161	161	T. 165
	Bottom		172	165	162		B. 166
Dissolved oxygen	Top	7.2	7.4	7.3	7.9	8.1	T. 7.6
B. O. D. (5-day, 20°C)	Top	6.1	4.7	4.4	5.9	3.1	T. 4.8
Chloride (Cl)	Top	—	9.0	8.5	8.0	8.0	T. 8.4
	Bottom		9.0	8.5	8.5		B. 8.7
Suspended sediment	Top	Composite					T. 28

b Exceeded this value.

Table 14.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Marcus Hook, Pa. Date August 3, 1949 Sampling study No. 1
Weather Rain Water discharge at Trenton (cfs) 2,740

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		--	--	11:00 a.m.	--	--	
Sounding (ft)		12	42	50	45	20	
Temperature (°F)	Top	85	86	85	86	85	T. 85
	Bottom	85	86	85	86	85	B. 85
Color	Bottom	20	25	23	25	30	B. 25
pH	Top	5.9	6.0	6.0	5.9	5.9	T. 5.9
	Bottom	6.2	5.9	6.1	6.1	6.0	B. 6.1
Specific conductance (micromhos at 25°C)	Top	1,690	1,320	1,330	1,530	1,300	T. 1,430
	Bottom	1,680	1,590	1,620	1,600	1,350	B. 1,570
Dissolved oxygen	Top	.8	.9	.9	1.4	1.5	T. 1.1
B. O. D. (5-day, 20°C)	Top	5.0	9.0	4.0	5.0	6.0	T. 5.8
Silica (SiO_2)	Bottom	4.7	4.8	4.7	5.2	5.1	B. 4.9
Iron (Fe)	Bottom	.05	.10	.10	.10	.10	B. .09
Calcium (Ca)	Bottom	30	31	31	33	31	B. 31
Magnesium (Mg)	Bottom	37	34	34	34	30	B. 34
Sodium (Na)	Bottom	240	222	232	231	183	B. 222
Bicarbonate (HCO_3)	Bottom	37	36	37	38	39	B. 37
Sulfate (SO_4)	Bottom	120	115	117	119	105	B. 115
Chloride (Cl)	Top	420	305	310	380	305	T. 344
	Bottom	415	385	400	400	320	B. 384
Fluoride (F)	Bottom	.5	.4	.5	.4	.5	B. .5
Nitrate (NO_3)	Bottom	5.5	4.7	5.4	4.8	4.8	B. 5.0
Dissolved solids	Bottom	998	948	961	942	795	B. 929
Hardness as $CaCO_3$	Bottom	227	217	217	222	201	B. 217
Suspended sediment	Top	Composite					T. --

Location Marcus Hook, Pa. Date September 7, 1949 Sampling study No. 2
Weather Rain Water discharge at Trenton (cfs) 3,210

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		--	--	11:15 a.m.	--	--	
Sounding (ft)		16	39	b50	b50	30	
Temperature (°F)	Top	77	77	77	76	75	T. 76
	Bottom	76	76	76	76	75	B. 76
Color	Bottom	20	20	20	20	21	B. 20
pH	Top	6.3	6.4	6.4	6.3	6.4	T. 6.4
	Bottom	6.6	6.8	7.0	6.8	6.7	B. 6.8
Specific conductance (micromhos at 25°C)	Top	2,340	2,430	2,510	3,380	3,780	T. 2,890
	Bottom	2,340	2,470	3,250	3,350	3,680	B. 3,020
Dissolved oxygen	Top	2.0	2.0	2.0	2.0	3.0	T. 2.2
B. O. D. (5-day, 20°C)	Top	9.5	9.5	6.5	6.5	.0	T. 6.4
Silica (SiO_2)	Bottom	3.8	3.2	3.7	3.5	3.3	B. 3.5
Iron (Fe)	Bottom	.10	.10	.10	.10	.10	B. .10
Calcium (Ca)	Bottom	42	47	48	48	53	B. 48
Magnesium (Mg)	Bottom	48	51	68	71	78	B. 63
Sodium (Na)	Bottom	341	366	491	509	572	B. 456
Bicarbonate (HCO_3)	Bottom	44	44	39	40	37	B. 41
Sulfate (SO_4)	Bottom	157	160	199	207	226	B. 190
Chloride (Cl)	Top	620	650	685	970	1,110	T. 807
	Bottom	600	630	880	915	1,030	B. 811
Fluoride (F)	Bottom	.4	.4	.4	.4	.4	B. .4
Nitrate (NO_3)	Bottom	3.8	3.8	3.8	4.8	4.9	B. 4.2
Dissolved solids	Bottom	1,420	1,530	2,080	2,140	2,360	B. 1,910
Hardness as $CaCO_3$	Bottom	302	327	399	412	453	B. 379
Suspended sediment	Top	Composite					T. 113

b Exceeded this value.

Table 14.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.--Continued
Analyzed by City of Philadelphia and U. S. Geological Survey, analyses in parts per million

Location Marcus Hook, Pa. Date October 5, 1949 Sampling study No. 3
Weather Cloudy Water discharge at Trenton (cfs) 3,280

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		--	--	1:30 p.m.	--	--	
Sounding (ft)		13	44	49	44	14	
Temperature (°F)	Top	71	71	71	71	71	T. 71
	Bottom	71	70	69	69	69	B. 70
Color	Bottom	18	20	20	20	22	B. 20
pH	Top	6.2	6.2	6.2	6.3	6.4	T. 6.3
	Bottom	6.1	6.9	6.6	6.9	6.5	B. 6.6
Specific conductance (micromhos at 25°C)	Top	3,060	3,180	3,180	3,510	3,900	T. 3,370
	Bottom	4,160	4,690	5,730	5,600	4,690	B. 4,970
Dissolved oxygen	Top	1.5	2.0	1.2	2.0	2.9	T. 1.9
B. O. D. (5-day, 20°C)	Top	8.7	6.0	4.4	3.4	3.7	T. 5.2
Silica (SiO_2)	Bottom	3.8	1.6	2.3	1.9	1.6	B. 2.2
Iron (Fe)	Bottom	.05	.06	.06	.06	.06	B. .06
Calcium (Ca)	Bottom	59	62	70	69	62	B. 64
Magnesium (Mg)	Bottom	92	104	131	128	104	B. 112
Sodium (Na)	Bottom	646	754	947	921	745	B. 803
Bicarbonate (HCO_3)	Bottom	28	28	30	30	33	B. 30
Sulfate (SO_4)	Bottom	270	286	350	337	286	B. 306
Chloride (Cl)	Top	855	925	935	1,080	1,240	T. 1,010
	Bottom	1,220	1,410	1,820	1,760	1,420	B. 1,530
Fluoride (F)	Bottom	.4	.4	.4	.4	.4	B. .4
Nitrate (NO_3)	Bottom	1.7	1.4	.9	1.2	1.4	B. 1.3
Dissolved solids	Bottom	2,560	2,940	3,710	3,530	2,940	B. 3,160
Hardness as $CaCO_3$	Bottom	526	582	713	698	582	B. 620
Suspended sediment	Top	Composite					T. 27

Location Marcus Hook, Pa. Date November 2, 1949 Sampling study No. 4
Weather Clear Water discharge at Trenton (cfs) 3,430

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		--	--	2:00 p.m.	--	--	
Sounding (ft)		14	45	48	41	27	
Temperature (°F)	Top	60	60	59	58	57	T. 59
	Bottom	60	58	58	60	59	B. 59
Color	Bottom	21	20	23	20	18	B. 20
pH	Top	6.1	6.1	6.2	6.3	6.4	T. 6.2
	Bottom	6.2	6.5	6.5	6.3	6.2	B. 6.3
Specific conductance (micromhos at 25°C)	Top	5,320	5,150	5,060	5,150	5,150	T. 5,170
	Bottom	5,340	6,130	6,200	6,230	5,930	B. 5,970
Dissolved oxygen	Top	4.1	4.0	4.1	4.9	5.2	T. 4.5
B. O. D. (5-day, 20°C)	Top	6.0	5.7	3.3	1.8	2.4	T. 3.8
Silica (SiO_2)	Bottom	2.3	1.3	2.3	1.5	2.7	B. 2.0
Iron (Fe)	Bottom	.06	.06	.10	.06	.08	B. .07
Calcium (Ca)	Bottom	70	74	75	74	73	B. 73
Magnesium (Mg)	Bottom	122	144	147	147	138	B. 140
Sodium (Na)	Bottom	899	1,060	1,090	1,090	1,010	B. 1,030
Bicarbonate (HCO_3)	Bottom	27	28	24	24	28	B. 26
Sulfate (SO_4)	Bottom	337	382	380	381	371	B. 370
Chloride (Cl)	Top	1,610	1,560	1,500	1,550	1,560	T. 1,560
	Bottom	1,670	1,990	2,000	2,020	1,900	B. 1,920
Fluoride (F)	Bottom	.4	.4	.4	.4	.4	B. .4
Nitrate (NO_3)	Bottom	1.0	1.3	1.0	1.0	.8	B. 1.0
Dissolved solids	Bottom	3,480	4,060	4,130	4,150	3,900	B. 3,940
Hardness as $CaCO_3$	Bottom	676	777	792	789	750	B. 757
Suspended sediment	Top	Composite					T. 24

Table 14.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.--Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Marcus Hook, Pa. Date December 2, 1949 Sampling study No. 5
Weather Cloudy Water discharge at Trenton (cfs) 4,750

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		—	—	12:30 p.m.	—	—	
Sounding (ft)		16	40	650	37	19	
Temperature (°F)	Top	45	45	45	45	45	T. 45
	Bottom	45	44	45	45	45	B. 45
Color	Bottom	8	10	12	12	10	B. 10
pH	Top	6.4	6.2	6.2	6.2	6.3	T. 6.3
	Bottom	6.4	6.9	6.9	6.9	6.3	B. 6.7
Specific conductance (micromhos at 25°C)	Top	2,300	3,270	2,760	2,830	3,270	T. 2,890
	Bottom	2,610	4,050	4,420	4,000	3,570	B. 3,730
Dissolved oxygen	Top	5.4	5.8	5.8	5.7	6.4	T. 5.8
B. O. D. (5-day, 20°C)	Top	1.0	.5	2.5	.5	2.5	T. 1.4
Silica (SiO_2)	Bottom	3.9	3.6	3.6	3.8	3.6	B. 3.7
Iron (Fe)	Bottom	.15	.10	.10	.10	.15	B. .12
Calcium (Ca)	Bottom	41	54	58	55	48	B. 51
Magnesium (Mg)	Bottom	59	92	101	92	83	B. 85
Sodium (Na)	Bottom	374	636	689	640	562	B. 580
Bicarbonate (HCO_3)	Bottom	22	16	17	17	19	B. 18
Sulfate (SO_4)	Bottom	192	271	281	270	243	B. 251
Chloride (Cl)	Top	575	890	725	760	900	T. 770
	Bottom	660	1,130	1,240	1,140	1,000	B. 1,090
Fluoride (F)	Bottom	.5	.5	.5	.5	.5	B. .5
Nitrate (NO_3)	Bottom	6.3	3.1	3.5	3.1	3.0	B. 3.8
Dissolved solids	Bottom	1,580	2,500	2,790	2,540	2,250	B. 2,340
Hardness as $CaCO_3$	Bottom	345	513	560	516	461	B. 479
Suspended sediment	Top	Composite					T. 40

b Exceeded this value.

Location Marcus Hook, Pa. Date January 5, 1950 Sampling study No. 6
Weather Clear Water discharge at Trenton (cfs) 11,100

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:47 p.m.	12:52 p.m.	12:55 p.m.	1:00 p.m.	1:05 p.m.	
Sounding (ft)		17	45	49	47	25	
Temperature (°F)	Top	49	47	45	45	45	T. 46
	Bottom	47	45	45	45	45	B. 45
Color	Bottom	4	6	6	6	7	B. 6
pH	Top	6.1	6.3	6.2	6.1	6.1	T. 6.2
	Bottom	7.0	7.2	7.2	7.2	7.3	B. 7.2
Specific conductance (micromhos at 25°C)	Top	201	177	181	177	181	T. 183
	Bottom	195	170	177	175	181	B. 180
Dissolved oxygen	Top	6.3	7.0	7.1	7.3	7.2	T. 7.0
B. O. D. (5-day, 20°C)	Top	5.0	3.5	4.5	4.5	2.0	T. 3.9
Silica (SiO_2)	Bottom	5.5	5.4	5.4	5.3	5.2	B. 5.4
Iron (Fe)	Bottom	.05	.04	.04	.05	.06	B. .05
Calcium (Ca)	Bottom	15	14	14	14	14	B. 14
Magnesium (Mg)	Bottom	5.4	5.1	5.3	5.3	5.6	B. 5.3
Sodium (Na)	Bottom	11	8.5	9.3	9.1	9.6	B. 9.5
Bicarbonate (HCO_3)	Bottom	24	24	24	26	26	B. 25
Sulfate (SO_4)	Bottom	47	39	40	38	39	B. 41
Chloride (Cl)	Top	10	11	10	11	12	T. 11
	Bottom	9.5	8.2	9.5	9.2	10	B. 9.3
Fluoride (F)	Bottom	.4	.2	.2	.2	.2	B. .2
Nitrate (NO_3)	Bottom	3.2	3.4	3.4	3.4	3.2	B. 3.3
Dissolved solids	Bottom	119	102	106	106	107	B. 108
Hardness as $CaCO_3$	Bottom	60	56	57	57	58	B. 58
Suspended sediment	Top	Composite					T. 78

Table 14.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.--Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Marcus Hook, Pa. Date February 3, 1950 Sampling study No. 7
Weather Clear Water discharge at Trenton (cfs) 14,300

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		12:05 p.m.	12:10 p.m.	12:14 p.m.	12:19 p.m.	12:21 p.m.		
Sounding (ft)		15	45	b50	36	35		
Temperature (°F)	Top	42	40	41	41	41	T.	41
	Bottom	42	42	41	41	41	B.	41
Color	Bottom	8	10	10	8	9	B.	9
pH	Top	6.4	6.4	6.4	6.4	6.4	T.	6.4
	Bottom	6.1	6.3	6.1	6.2	6.4	B.	6.2
Specific conductance (micromhos at 25°C)	Top	219	190	185	180	181	T.	191
	Bottom	210	194	194	183	180	B.	192
Dissolved oxygen	Top	5.8	5.8	6.5	7.7	7.0	T.	6.6
B. O. D. (5-day, 20°C)	Top	2.0	3.5	2.5	1.0	2.0	T.	2.2
Silica (SiO_2)	Bottom	6.5	6.4	7.3	6.6	6.2	B.	6.6
Iron (Fe)	Bottom	.05	.06	.06	.06	.06	B.	.06
Calcium (Ca)	Bottom	16	14	15	14	13	B.	14
Magnesium (Mg)	Bottom	5.7	5.3	5.2	4.9	4.8	B.	5.2
Sodium (Na)	Bottom	11	11	11	9.2	10	B.	10
Bicarbonate (HCO_3)	Bottom	12	16	17	14	12	B.	14
Sulfate (SO_4)	Bottom	53	46	47	43	43	B.	46
Chloride (Cl)	Top	12	12	11	11	11	T.	11
	Bottom	12	11	11	10	10	B.	11
Fluoride (F)	Bottom	.2	.2	.2	.2	.2	B.	.2
Nitrate (NO_3)	Bottom	8.1	7.1	6.0	5.4	6.1	B.	6.5
Dissolved solids	Bottom	124	112	114	107	106	B.	113
Hardness as $CaCO_3$	Bottom	63	57	59	55	52	B.	57
Suspended sediment	Top	Composite					T.	73

b Exceeded this value.

Location Marcus Hook, Pa. Date March 7, 1950 Sampling study No. 8
Weather Partly Cloudy Water discharge at Trenton (cfs) 7,260

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		10:43 a.m.	10:45 a.m.	10:50 a.m.	10:58 a.m.	11:00 a.m.		
Sounding (ft)		13	37	45	43	26		
Temperature (°F)	Top	38	36	36	36	35	T.	36
	Bottom	37	36	35	35	35	B.	36
Color	Bottom	10	12	12	10	10	B.	11
pH	Top	6.5	6.6	6.6	6.7	6.7	T.	6.6
	Bottom	6.5	6.7	6.7	6.7	6.7	B.	6.7
Specific conductance (micromhos at 25°C)	Top	228	212	204	204	205	T.	211
	Bottom	235	217	206	206	207	B.	214
Dissolved oxygen	Top	8.7	8.6	9.4	9.5	9.5	T.	9.1
B. O. D. (5-day, 20°C)	Top	6.3	4.2	4.5	4.1	3.6	T.	4.5
Silica (SiO_2)	Bottom	7.3	7.1	7.0	7.2	7.0	B.	7.1
Iron (Fe)	Bottom	.12	.24	.23	.21	.29	B.	.22
Calcium (Ca)	Bottom	18	17	16	16	16	B.	17
Magnesium (Mg)	Bottom	6.1	6.0	5.9	5.9	5.9	B.	6.0
Sodium (Na)	Bottom	15	14	13	13	13	B.	14
Bicarbonate (HCO_3)	Bottom	27	30	28	27	27	B.	28
Sulfate (SO_4)	Bottom	57	51	48	48	49	B.	51
Chloride (Cl)	Top	13	12	12	12	12	T.	12
	Bottom	13	12	12	12	12	B.	12
Fluoride (F)	Bottom	.3	.2	.2	.2	.1	B.	.2
Nitrate (NO_3)	Bottom	4.0	4.4	4.2	4.4	4.8	B.	4.4
Dissolved solids	Bottom	136	130	124	124	124	B.	128
Hardness as $CaCO_3$	Bottom	70	67	64	64	64	B.	66
Suspended sediment	Top	Composite					T.	57

Table 14. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Marcus Hook, Pa. Date April 3, 1950 Sampling study No. 9
Weather Rain Water discharge at Trenton (cfs) 32,300

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		1:15 p.m.	1:25 p.m.	1:28 p.m.	1:32 p.m.	1:38 p.m.	
Sounding (ft)		14	43	45	47	21	
Temperature (°F)	Top	48	47	48	47	47	T. 47
	Bottom	47	46	46	46	47	B. 46
Color	Bottom	8	7	6	7	6	B. 7
pH	Top	5.9	6.4	6.6	6.6	6.6	T. 6.4
	Bottom	6.2	6.6	6.7	6.8	6.8	B. 6.6
Specific conductance (micromhos at 25°C)	Top	143	113	109	108	114	T. 117
	Bottom	146	116	115	112	115	B. 121
Dissolved oxygen	Top	8.4	9.0	9.1	8.9	8.9	T. 8.9
B. O. D. (5-day, 20°C)	Top	3.8	3.2	2.9	2.9	2.4	T. 3.0
Silica (SiO_2)	Bottom	5.5	5.0	5.0	4.7	4.9	B. 5.0
Iron (Fe)	Bottom	.05	.07	.03	.05	.04	B. .05
Calcium (Ca)	Bottom	13	10	10	10	11	B. 11
Magnesium (Mg)	Bottom	4.0	3.7	3.7	3.5	3.7	B. 3.7
Sodium (Na)	Bottom	8.3	7.2	6.6	6.9	5.7	B. 6.9
Bicarbonate (HCO_3)	Bottom	13	17	16	19	19	B. 17
Sulfate (SO_4)	Bottom	42	29	28	26	27	B. 30
Chloride (Cl)	Top	6.0	5.0	5.0	4.0	5.0	T. 5.0
	Bottom	6.8	5.2	5.5	5.5	5.5	B. 5.7
Fluoride (F)	Bottom	.3	.2	.2	.2	.1	B. .2
Nitrate (NO_3)	Bottom	3.4	4.6	4.8	4.2	4.2	B. 4.2
Dissolved solids	Bottom	95	79	75	73	75	B. 79
Hardness as $CaCO_3$	Bottom	49	40	40	39	43	B. 42
Suspended sediment	Top	Composite					T. 46

Location Marcus Hook, Pa. Date May 3, 1950 Sampling study No. 10
Weather Cloudy Water discharge at Trenton (cfs) 17,000

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		1:45 p.m.	1:50 p.m.	1:55 p.m.	2:00 p.m.	2:05 p.m.	
Sounding (ft)		14	40	42	48	36	
Temperature (°F)	Top	57	56	55	55	55	T. 56
	Bottom	55	55	55	54	54	B. 55
Color	Bottom	5	5	6	5	6	B. 5
pH	Top	5.9	6.1	6.4	6.4	6.4	T. 6.2
	Bottom	6.2	6.5	6.6	6.5	6.5	B. 6.5
Specific conductance (micromhos at 25°C)	Top	228	208	185	190	198	T. 202
	Bottom	216	189	181	190	191	B. 193
Dissolved oxygen	Top	4.0	3.9	4.0	4.2	4.2	T. 4.1
B. O. D. (5-day, 20°C)	Top	7.3	7.4	7.1	7.1	7.3	T. 7.2
Silica (SiO_2)	Bottom	4.8	4.8	4.6	5.1	5.0	B. 4.9
Iron (Fe)	Bottom	.06	.06	.04	.07	.06	B. .06
Calcium (Ca)	Bottom	18	15	14	15	14	B. 15
Magnesium (Mg)	Bottom	5.4	5.2	5.0	5.6	4.2	B. 5.1
Sodium (Na)	Bottom	14	14	15	13	17	B. 15
Bicarbonate (HCO_3)	Bottom	20	27	30	27	25	B. 26
Sulfate (SO_4)	Bottom	60	45	42	44	45	B. 47
Chloride (Cl)	Top	12	11	10	10	10	T. 11
	Bottom	10	10	9.5	10	11	B. 10
Fluoride (F)	Bottom	.4	.1	.3	.2	.3	B. .3
Nitrate (NO_3)	Bottom	5.5	6.8	6.6	6.4	6.6	B. 6.4
Dissolved solids	Bottom	137	118	116	121	121	B. 123
Hardness as $CaCO_3$	Bottom	67	59	56	60	52	B. 59
Suspended sediment	Top	Composite					T. 42

Table 14. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Marcus Hook, Pa. Date June 5, 1950 Sampling study No. 11
Weather Clear Water discharge at Trenton (cfs) 12,500

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		11:20 a.m.	11:28 a.m.	11:32 a.m.	11:35 a.m.	11:40 a.m.		
Sounding (ft)		13	38	44	43	20		
Temperature (°F)	Top	70	70	69	69	69	T.	69
	Bottom	69	70	70	70	68	B.	69
Color	Bottom	5	17	12	15	15	B.	13
pH	Top	6.3	6.3	6.3	6.3	6.2	T.	6.3
	Bottom	6.6	6.7	6.6	6.7	6.6	B.	6.6
Specific conductance (micromhos at 25°C)	Top	181	177	158	159	160	T.	167
	Bottom	198	169	157	159	161	B.	169
Dissolved oxygen	Top	2.0	1.7	2.4	2.6	2.9	T.	2.3
B. O. D. (5-day, 20°C)	Top	1.5	.9	1.0	.6	1.5	T.	1.1
Silica (SiO_2)	Bottom	7.5	5.9	5.8	5.2	5.5	B.	6.0
Iron (Fe)	Bottom	.06	.05	.05	.06	.06	B.	.06
Calcium (Ca)	Bottom	16	14	14	15	14	B.	15
Magnesium (Mg)	Bottom	4.7	4.5	4.2	4.3	4.0	B.	4.3
Sodium (Na)	Bottom	8.2	6.8	5.8	6.8	6.7	B.	6.9
Bicarbonate (HCO_3)	Bottom	31	26	25	25	25	B.	26
Sulfate (SO_4)	Bottom	39	36	34	33	34	B.	35
Chloride (Cl)	Top	9.0	9.0	8.0	8.0	8.0	T.	8.4
	Bottom	9.0	7.8	7.4	7.1	6.9	B.	7.6
Fluoride (F)	Bottom	.2	.2	.2	.2	.2	B.	.2
Nitrate (NO_3)	Bottom	5.4	5.4	4.8	4.7	4.6	B.	5.0
Dissolved solids	Bottom	120	110	106	104	105	B.	109
Hardness as $CaCO_3$	Bottom	59	53	52	55	51	B.	54
Suspended sediment	Top	Composite					T.	24

Location Marcus Hook, Pa. Date July 5, 1950 Sampling study No. 12
Weather Cloudy Water discharge at Trenton (cfs) 5,630

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		11:15 a.m.	11:20 a.m.	11:25 a.m.	11:30 a.m.	11:40 a.m.		
Sounding (ft)		11	42	44	35	25		
Temperature (°F)	Top	79	79	78	78	79	T.	79
	Bottom	78	78	78	78	78	B.	78
Color	Bottom	8	6	4	4	8	B.	6
pH	Top	6.4	6.5	6.2	6.3	6.2	T.	6.3
	Bottom	6.4	6.6	6.3	6.3	6.3	B.	6.4
Specific conductance (micromhos at 25°C)	Top	231	226	221	222	221	T.	225
	Bottom	229	221	222	222	224	B.	224
Dissolved oxygen	Top	1.2	1.7	1.8	<.3	2.4	T.	1.9
B. O. D. (5-day, 20°C)	Top	3.5	3.2	3.5	3.6	5.1	T.	3.8
Silica (SiO_2)	Bottom	6.9	5.6	7.2	5.1	6.4	B.	6.2
Iron (Fe)	Bottom	.06	.06	.06	.06	.04	B.	.06
Calcium (Ca)	Bottom	18	18	18	18	18	B.	18
Magnesium (Mg)	Bottom	6.0	6.1	6.3	5.9	6.1	B.	6.1
Sodium (Na)	Bottom	14	12	12	10	13	B.	12
Bicarbonate (HCO_3)	Bottom	28	29	32	30	32	B.	30
Sulfate (SO_4)	Bottom	49	47	49	48	50	B.	49
Chloride (Cl)	Top	16	14	14	14	14	T.	14
	Bottom	14	12	12	13	13	B.	13
Fluoride (F)	Bottom	.3	.3	.3	.3	.3	B.	.3
Nitrate (NO_3)	Bottom	5.3	4.4	2.7	4.4	2.8	B.	3.9
Dissolved solids	Bottom	138	131	134	132	134	B.	134
Hardness as $CaCO_3$	Bottom	70	70	71	69	70	B.	70
Suspended sediment	Top	Composite					T.	34

Table 14. -- WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continned
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Marcus Hook, Pa. Date August 1, 1950 Sampling study No. 13
Weather Cloudy Water discharge at Trenton (cfs) 4,710

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:00 a.m.	11:05 a.m.	11:12 a.m.	11:17 a.m.	11:25 a.m.	
Sounding (ft)		13	43	46	35	40	
Temperature (°F)	Top	82	82	81	80	80	T. 81
	Bottom	81	80	81	80	80	B. 80
Color	Bottom	20	18	21	21	18	B. 20
pH	Top	6.1	6.2	6.1	6.1	6.2	T. 6.1
	Bottom	6.4	6.3	6.4	6.2	6.3	B. 6.3
Specific conductance (micromhos at 25°C)	Top	259	255	235	239	245	T. 247
	Bottom	264	236	237	241	243	B. 244
Dissolved oxygen	Top	.6	1.0	.8	1.2	1.4	T. 1.0
B. O. D. (5-day, 20°C)	Top	3.6	1.6	1.4	1.2	1.1	T. 1.8
Silica (SiO_2)	Bottom	7.5	7.4	7.8	6.9	7.0	B. 7.3
Iron (Fe)	Bottom	.06	.07	.07	.06	.12	B. .08
Calcium (Ca)	Bottom	20	19	18	19	21	B. 19
Magnesium (Mg)	Bottom	6.4	6.2	6.7	6.6	6.6	B. 6.5
Sodium (Na)	Bottom	17	14	13	13	11	B. 14
Bicarbonate (HCO_3)	Bottom	34	41	44	36	33	B. 38
Sulfate (SO_4)	Bottom	55	46	45	48	49	B. 49
Chloride (Cl)	Top	17	16	14	15	16	T. 16
	Bottom	17	14	13	14	16	B. 15
Fluoride (F)	Bottom	.3	.3	.2	.2	.2	B. .2
Nitrate (NO_3)	Bottom	6.2	4.6	2.6	5.3	6.2	B. 5.0
Dissolved solids	Bottom	161	143	144	148	149	B. 149
Hardness as $CaCO_3$	Bottom	76	74	72	75	80	B. 75
Suspended sediment	Top	Composite					T. 44

Location Marcus Hook, Pa. Date September 5, 1950 Sampling study No. 14
Weather Clear Water discharge at Trenton (cfs) 5,800

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:55 a.m.	11:00 a.m.	11:05 a.m.	11:15 a.m.	11:20 a.m.	
Sounding (ft)		39	48	48	27	25	
Temperature (°F)	Top	78	78	78	78	78	T. 78
	Bottom	77	77	77	77	77	B. 77
Color	Bottom	15	12	15	27	15	B. 17
pH	Top	6.3	6.4	6.4	6.4	6.3	T. 6.4
	Bottom	6.4	6.7	6.5	6.6	6.6	B. 6.6
Specific conductance (micromhos at 25°C)	Top	586	525	523	524	514	T. 534
	Bottom	577	535	530	534	541	B. 543
Dissolved oxygen	Top	.5	.8	1.5	.6	1.5	T. 1.0
B. O. D. (5-day, 20°C)	Top	7.8	6.0	5.4	4.8	6.6	T. 6.1
Silica (SiO_2)	Bottom	5.1	5.3	5.4	5.4	5.5	B. 5.3
Iron (Fe)	Bottom	.11	.13	.14	.21	.16	B. .15
Calcium (Ca)	Bottom	23	22	22	22	22	B. 22
Magnesium (Mg)	Bottom	14	12	13	13	13	B. 13
Sodium (Na)	Bottom	58	60	49	52	51	B. 54
Bicarbonate (HCO_3)	Bottom	42	62	42	42	41	B. 46
Sulfate (SO_4)	Bottom	68	63	62	64	63	B. 64
Chloride (Cl)	Top	96	84	82	80	82	T. 85
	Bottom	92	80	78	82	82	B. 83
Fluoride (F)	Bottom	.3	.3	.3	.3	.3	B. .3
Nitrate (NO_3)	Bottom	8.2	7.9	8.3	7.9	6.6	B. 7.8
Dissolved solids	Bottom	336	324	314	321	328	B. 325
Hardness as $CaCO_3$	Bottom	115	104	108	108	108	B. 109
Suspended sediment	Top	Composite					T. 30

Table 14. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Marcus Hook, Pa. Date October 2, 1950 Sampling study No. 15
Weather Clear Water discharge at Trenton (cfs) 3,020

		Station						
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average	
Time (EST)		12:00 n.	12:05 p.m.	12:10 p.m.	12:15 p.m.	12:20 p.m.		
Sounding (ft)		10	38	45	47	33		
Temperature (°F)	Top	69	69	68	68	68	T.	68
	Bottom	69	69	68	68	68	B.	68
Color	Bottom	25	22	18	20	18	B.	21
pH	Top	5.9	6.0	6.3	6.3	6.2	T.	6.1
	Bottom	6.4	6.3	6.4	6.5	6.5	B.	6.4
Specific conductance (micromhos at 25°C)	Top	766	615	404	412	494	T.	538
	Bottom	782	622	397	442	493	B.	547
Dissolved oxygen	Top	.9	.7	.9	1.1	1.4	T.	1.0
B. O. D. (5-day, 20°C)	Top	10.2	8.2	7.6	6.3	2.4	T.	6.9
Silica (SiO_2)	Bottom	9.3	6.0	7.2	6.7	5.9	B.	7.0
Iron (Fe)	Bottom	.35	.25	.15	.16	.08	B.	.20
Calcium (Ca)	Bottom	28	24	22	22	22	B.	24
Magnesium (Mg)	Bottom	16	14	11	11	12	B.	13
Sodium (Na)	Bottom	92	68	30	40	47	B.	55
Bicarbonate (HCO_3)	Bottom	71	23	39	37	40	B.	42
Sulfate (SO_4)	Bottom	76	90	60	62	67	B.	71
Chloride (Cl)	Top	135	100	45	50	65	T.	79
	Bottom	132	102	45	60	70	B.	82
Fluoride (F)	Bottom	.8	.4	.3	.3	.3	B.	.4
Nitrate (NO_3)	Bottom	14	10	8.9	8.8	7.2	B.	9.8
Dissolved solids	Bottom	423	358	234	256	286	B.	311
Hardness as $CaCO_3$	Bottom	136	117	100	100	104	B.	111
Suspended sediment	Top	Composite					T.	32

Location Marcus Hook, Pa. Date November 1, 1950 Sampling study No. 16
Weather Clear Water discharge at Trenton (cfs) 2,600

		Station						
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average	
Time (EST)		12:35 p.m.	12:40 p.m.	12:43 p.m.	12:48 p.m.	12:52 p.m.		
Sounding (ft)		27	48	48	38	17		
Temperature (°F)	Top	64	65	63	64	63	T.	64
	Bottom	63	63	63	64	64	B.	63
Color	Bottom	9	12	10	14	12	B.	11
pH	Top	6.3	6.4	6.4	6.4	6.3	T.	6.4
	Bottom	6.6	6.7	6.9	7.0	6.7	B.	6.8
Specific conductance (micromhos at 25°C)	Top	1,060	876	855	902	1,310	T.	1,000
	Bottom	1,260	930	881	1,030	1,110	B.	1,040
Dissolved oxygen	Top	1.1	1.3	1.3	1.2	1.2	T.	1.2
B. O. D. (5-day, 20°C)	Top	4.4	5.5	6.7	4.5	7.2	T.	5.7
Silica (SiO_2)	Bottom	6.9	6.4	6.6	6.2	6.3	B.	6.5
Iron (Fe)	Bottom	.33	.06	.03	.05	.23	B.	.14
Calcium (Ca)	Bottom	31	28	26	30	29	B.	29
Magnesium (Mg)	Bottom	29	22	21	24	26	B.	24
Sodium (Na)	Bottom	160	111	106	128	140	B.	129
Bicarbonate (HCO_3)	Bottom	31	34	33	32	29	B.	32
Sulfate (SO_4)	Bottom	108	97	99	107	112	B.	105
Chloride (Cl)	Top	210	155	150	170	280	T.	193
	Bottom	285	190	175	220	240	B.	222
Fluoride (F)	Bottom	.4	.3	.3	.4	.5	B.	.4
Nitrate (NO_3)	Bottom	6.1	7.7	7.5	6.1	6.2	B.	6.7
Dissolved solids	Bottom	747	546	521	612	658	B.	617
Hardness as $CaCO_3$	Bottom	197	160	151	174	179	B.	172
Suspended sediment	Top	Composite					T.	29

Table 14.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.--Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Marcus Hook, Pa. Date December 5, 1950 Sampling study No. 17
Weather Partly Cloudy Water discharge at Trenton (cfs) 83,500

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		11:15 a.m.	11:18 a.m.	11:22 a.m.	11:25 a.m.	11:28 a.m.		
Sounding (ft)		3	42	47	41	27		
Temperature (°F)	Top	43	42	42	41	42	T.	42
	Bottom	41	41	41	41	41	B.	41
Color	Bottom	28	28	26	28	28	B.	28
pH	Top	6.0	6.0	6.0	6.0	6.0	T.	6.0
	Bottom	7.1	6.9	7.1	6.6	6.9	B.	6.9
Specific conductance (micromhos at 25°C)	Top	157	142	139	139	140	T.	143
	Bottom	144	139	137	137	136	B.	139
Dissolved oxygen	Top	10.0	10.6	11.0	10.9	10.4	T.	10.6
B. O. D. (5-day, 20°C)	Top	6.2	6.2	6.0	6.1	6.2	T.	6.1
Silica (SiO_2)	Bottom	--	--	--	--	--	B.	--
Iron (Fe)	Bottom	--	--	--	--	--	B.	--
Calcium (Ca)	Bottom	--	--	--	--	--	B.	--
Magnesium (Mg)	Bottom	--	--	--	--	--	B.	--
Sodium (Na)	Bottom	--	--	--	--	--	B.	--
Bicarbonate (HCO_3)	Bottom	10	11	10	10	10	B.	10
Sulfate (SO_4)	Bottom	39	34	33	33	33	B.	34
Chloride (Cl)	Top	8.0	6.0	6.0	6.0	6.0	T.	6.4
	Bottom	8.0	7.2	7.0	7.2	7.2	B.	7.3
Fluoride (F)	Bottom	--	--	--	--	--	B.	--
Nitrate (NO_3)	Bottom	6.4	7.2	6.4	6.3	5.8	B.	6.4
Dissolved solids	Bottom	--	--	--	--	--	B.	--
Hardness as $CaCO_3$	Bottom	46	42	42	42	42	B.	43
Suspended sediment	Top	Composite					T.	123

Location Marcus Hook, Pa. Date January 2, 1951 Sampling study No. 18
Weather Overcast Water discharge at Trenton (cfs) 8,670

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		12:00 n.	12:04 p.m.	12:09 p.m.	12:12 p.m.	12:15 p.m.		
Sounding (ft)		11	40	45	43	27		
Temperature (°F)	Top	36	36	35	35	36	T.	36
	Bottom	37	35	35	35	35	B.	35
Color	Bottom	9		10		12	B.	10
pH	Top	6.3	6.5	6.4	6.4	6.4	T.	6.4
	Bottom	6.9	6.7	6.5	6.4	6.6	B.	6.6
Specific conductance (micromhos at 25°C)	Top	232	214	209	205	204	T.	213
	Bottom	237	221	202	213	198	B.	214
Dissolved oxygen	Top	6.6	6.9	6.6	6.8	7.0	T.	6.8
B. O. D. (5-day, 20°C)	Top	6.2	5.4	4.1	4.8	4.5	T.	5.0
Silica (SiO_2)	Bottom	6.1		6.3		5.7	B.	6.0
Iron (Fe)	Bottom	.05		.10		.18	B.	.11
Calcium (Ca)	Bottom	18		16		16	B.	17
Magnesium (Mg)	Bottom	6.6		6.5		6.1	B.	6.4
Sodium (Na)	Bottom	15		9.6		9.4	B.	11
Bicarbonate (HCO_3)	Bottom	22		14		13	B.	16
Sulfate (SO_4)	Bottom	60		52		51	B.	54
Chloride (Cl)	Top	8.0	8.0	8.0	8.0	8.0	T.	8.0
	Bottom	14	8.0	10	8.0	10	B.	10
Fluoride (F)	Bottom	.4		.3		.3	B.	.3
Nitrate (NO_3)	Bottom	4.6		8.8		8.8	B.	7.4
Dissolved solids	Bottom	145		129		128	B.	134
Hardness as $CaCO_3$	Bottom	72		67		65	B.	68
Suspended sediment	Top	Composite					T.	49

Table 14. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Marcus Hook, Pa. Date March 1, 1951 Sampling study No. 19
Weather Rain Water discharge at Trenton (cfs) 21,000

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		12:00 n.	12:05 p.m.	12:10 p.m.	12:15 p.m.	12:20 p.m.		
Sounding (ft)		30	49	49	42	40		
Temperature (°F)	Top	43	42	42	41	41	T.	42
	Bottom	42	42	41	41	41	B.	41
Color	Bottom	20		25		28	B.	24
pH	Top	6.3	6.4	6.5	6.5	6.5	T.	6.4
	Bottom	6.8	6.8	6.8	6.7	6.7	B.	6.8
Specific conductance (micromhos at 25°C)	Top	162	146	138	133	132	T.	142
	Bottom	157	132	133	132	150	B.	141
Dissolved oxygen	Top	10.6	10.4	10.6	11.0	11.0	T.	10.7
B. O. D. (5-day, 20°C)	Top	6.1	5.0	5.2	4.6	4.5	T.	5.1
Silica (SiO_2)	Bottom	5.3		4.7		4.9	B.	5.0
Iron (Fe)	Bottom	.43		.34		.48	B.	.42
Calcium (Ca)	Bottom	14		12		12	B.	13
Magnesium (Mg)	Bottom	4.4		4.3		4.8	B.	4.5
Sodium (Na)	Bottom	5.4		5.4		3.0	B.	4.6
Bicarbonate (HCO_3)	Bottom	22		19		16	B.	19
Sulfate (SO_4)	Bottom	32		31		30	B.	31
Chloride (Cl)	Top	7.0	6.0	6.0	6.0	5.0	T.	6.0
	Bottom	7.2	6.0	5.8	6.0	6.2	B.	6.2
Fluoride (F)	Bottom	.3		.2		.2	B.	.2
Nitrate (NO_3)	Bottom	3.4		3.8		3.3	B.	3.5
Dissolved solids	Bottom	100		85		88	B.	91
Hardness as $CaCO_3$	Bottom	53		48		50	B.	50
Suspended sediment	Top	Composite					T.	73

Location Marcus Hook, Pa. Date April 3, 1951 Sampling study No. 20
Weather Overcast Water discharge at Trenton (cfs) 53,100

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		11:35 a.m.	11:37 a.m.	11:40 a.m.	11:42 a.m.	11:44 a.m.		
Sounding (ft)		38	47	b50	40	24		
Temperature (°F)	Top	48	48	48	48	48	T.	48
	Bottom	48	47	47	48	48	B.	48
Color	Bottom	25		27		25	B.	26
pH	Top	6.7	6.8	6.8	6.8	6.9	T.	6.8
	Bottom	6.8	6.8	6.8	6.8	6.7	B.	6.8
Specific conductance (micromhos at 25°C)	Top	105	101	86.0	85.1	82.1	T.	91.8
	Bottom	105	86.8	85.2	84.0	84.8	B.	89.2
Dissolved oxygen	Top	9.9	9.6	10.1	10.5	10.5	T.	10.1
B. O. D. (5-day, 20°C)	Top	2.6	2.6	2.8	3.1	2.8	T.	2.7
Silica (SiO_2)	Bottom	—		—		—	B.	—
Iron (Fe)	Bottom	—		—		—	B.	—
Calcium (Ca)	Bottom	—		—		—	B.	—
Magnesium (Mg)	Bottom	—		—		—	B.	—
Sodium (Na)	Bottom	a5.4		a2.7		a2.4	B.	a3.5
Bicarbonate (HCO_3)	Bottom	14		14		14	B.	14
Sulfate (SO_4)	Bottom	25		19		18	B.	21
Chloride (Cl)	Top	4.0	4.0	4.0	4.0	4.0	T.	4.0
	Bottom	6.2	5.0	3.4	5.0	4.0	B.	4.7
Fluoride (F)	Bottom	—		—		—	B.	—
Nitrate (NO_3)	Bottom	2.0		2.2		1.8	B.	2.0
Dissolved solids	Bottom	—		—		—	B.	—
Hardness as $CaCO_3$	Bottom	36		32		32	B.	33
Suspended sediment	Top	Composite					T.	48

a Calculated Sodium and Potassium.
b Exceeded this value.

Table 14.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.--Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Marcus Hook, Pa. Date May 2, 1951 Sampling study No. 21
Weather Clear Water discharge at Trenton (cfs) 12,400

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		9:50 a.m.	9:55 a.m.	10:00 a.m.	10:05 a.m.	10:10 a.m.		
Sounding (ft)		36	48	b50	b50	39		
Temperature (°F)	Top	63	62	62	61	61	T.	62
	Bottom	62	61	61	61	61	B.	61
Color	Bottom	18		15		10	B.	14
pH	Top	6.5	6.6	6.7	6.7	6.7	T.	6.6
	Bottom	6.7	6.8	6.8	6.8	6.8	B.	6.8
Specific conductance (micromhos at 25°C)	Top	196	181	181	180	181	T.	184
	Bottom	192	182	180	191	177	B.	184
Dissolved oxygen	Top	2.5	2.8	3.0	2.8	3.5	T.	2.9
B. O. D. (5-day, 20°C)	Top	2.5	2.2	2.4	2.6	2.8	T.	2.5
Silica (SiO_2)	Bottom	7.1		7.4		7.0	B.	7.2
Iron (Fe)	Bottom	.15		.12		.12	B.	.13
Calcium (Ca)	Bottom	16		15		14	B.	15
Magnesium (Mg)	Bottom	5.6		5.4		5.4	B.	5.5
Sodium (Na)	Bottom	7.8		6.6		7.0	B.	7.1
Bicarbonate (HCO_3)	Bottom	16		18		18	B.	17
Sulfate (SO_4)	Bottom	47		40		39	B.	42
Chloride (Cl)	Top	11	10	10	10	10	T.	10
	Bottom	10	10	9.8	10	9.8	B.	9.9
Fluoride (F)	Bottom	.2		.2		.2	B.	.2
Nitrate (NO_3)	Bottom	5.9		5.0		4.2	B.	5.0
Dissolved solids	Bottom	119		109		111	B.	113
Hardness as $CaCO_3$	Bottom	63		60		57	B.	60
Suspended sediment	Top	Composite					T.	27

b Exceeded this value.

Location Marcus Hook, Pa. Date June 8, 1951 Sampling study No. 22
Weather Rain Water discharge at Trenton (cfs) 7,520

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		10:35 a.m.	10:37 a.m.	10:39 a.m.	10:41 a.m.	10:43 a.m.		
Sounding (ft)		9	36	47	48	35		
Temperature (°F)	Top	73	72	72	72	72	T.	72
	Bottom	72	72	72	72	72	B.	72
Color	Bottom	15		15		10	B.	13
pH	Top	6.6	6.6	6.6	6.6	6.6	T.	6.6
	Bottom	6.7	6.8	6.9	6.8	7.0	B.	6.8
Specific conductance (micromhos at 25°C)	Top	279	253	235	236	238	T.	248
	Bottom	258	243	235	236	239	B.	242
Dissolved oxygen	Top	2.9	1.2	1.0	1.4	1.4	T.	1.6
B. O. D. (5-day, 20°C)	Top	4.5	2.5	.5	1.8	1.5	T.	2.2
Silica (SiO_2)	Bottom	4.5		4.3		4.2	B.	4.3
Iron (Fe)	Bottom	.10		.06		.44	B.	.20
Calcium (Ca)	Bottom	19		18		17	B.	18
Magnesium (Mg)	Bottom	7.3		6.9		6.8	B.	7.0
Sodium (Na)	Bottom	13		12		14	B.	13
Bicarbonate (HCO_3)	Bottom	39		40		39	B.	39
Sulfate (SO_4)	Bottom	49		44		46	B.	46
Chloride (Cl)	Top	18	16	13	13	13	T.	15
	Bottom	14	13	12	13	13	B.	13
Fluoride (F)	Bottom	.3		.1		.3	B.	.2
Nitrate (NO_3)	Bottom	5.3		6.3		6.2	B.	5.9
Dissolved solids	Bottom	152		133		133	B.	139
Hardness as $CaCO_3$	Bottom	77		73		70	B.	73
Suspended sediment	Top	Composite					T.	26

Table 14. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Marcus Hook, Pa. Date July 6, 1951 Sampling study No. 23
Weather Clear Water discharge at Trenton (cfs) 9,250

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		10:45 a.m.	10:47 a.m.	10:50 a.m.	10:53 a.m.	10:55 a.m.		
Sounding (ft)		23	41	45	35	31		
Temperature (°F)	Top	79	78	78	78	77	T.	78
	Bottom	78	78	78	77	77	B.	78
Color	Bottom	15		18		15	B.	16
pH	Top	6.3	6.3	6.4	6.5	6.5	T.	6.4
	Bottom	6.7	6.6	6.7	6.6	6.7	B.	6.7
Specific conductance (micromhos at 25°C)	Top	370	301	299	244	251	T.	293
	Bottom	333	239	244	246	250	B.	262
Dissolved oxygen	Top	1.8	1.6	2.2	2.6	3.3	T.	2.3
B. O. D. (5-day, 20°C)	Top	.8	.7	.0	.7	.3	T.	.5
Silica (SiO_2)	Bottom	6.3		5.8		5.8	B.	6.0
Iron (Fe)	Bottom	.15		.20		.16	B.	.17
Calcium (Ca)	Bottom	32		21		21	B.	25
Magnesium (Mg)	Bottom	7.6		7.5		7.7	B.	7.6
Sodium (Na)	Bottom	19		11		11	B.	14
Bicarbonate (HCO_3)	Bottom	37		41		38	B.	39
Sulfate (SO_4)	Bottom	90		48		51	B.	63
Chloride (Cl)	Top	18	16	16	14	14	T.	16
	Bottom	15	14	13	14	14	B.	14
Fluoride (F)	Bottom	.9		.0		.2	B.	.4
Nitrate (NO_3)	Bottom	6.5		5.8		5.3	B.	5.9
Dissolved solids	Bottom	213		157		161	B.	177
Hardness as $CaCO_3$	Bottom	111		83		84	B.	93
Suspended sediment	Top	Composite					T.	13

Location Marcus Hook, Pa. Date August 2, 1951 Sampling study No. 24
Weather Clear Water discharge at Trenton (cfs) 10,300

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		11:10 a.m.	11:12 a.m.	11:14 a.m.	11:16 a.m.	11:18 a.m.		
Sounding (ft)		11	45	b50	b50	35		
Temperature (°F)	Top	80	80	80	80	80	T.	80
	Bottom	80	80	80	80	80	B.	80
Color	Bottom	6		6		6	B.	6
pH	Top	6.2	6.4	6.5	6.4	6.4	T.	6.4
	Bottom	7.6	6.5	7.5	6.5	7.4	B.	7.1
Specific conductance (micromhos at 25°C)	Top	332	261	254	265	286	T.	280
	Bottom	306	260	254	301	286	B.	281
Dissolved oxygen	Top	3.7	2.8	2.6	3.3	3.1	T.	3.1
B. O. D. (5-day, 20°C)	Top	7.5	4.8	3.6	2.7	1.8	T.	4.1
Silica (SiO_2)	Bottom	1.5		3.9		4.3	B.	3.2
Iron (Fe)	Bottom	.02		.01		.01	B.	.01
Calcium (Ca)	Bottom	27		19		20	B.	22
Magnesium (Mg)	Bottom	7.8		7.0		7.5	B.	7.4
Sodium (Na)	Bottom	17		15		20	B.	17
Bicarbonate (HCO_3)	Bottom	32		33		31	B.	32
Sulfate (SO_4)	Bottom	76		56		59	B.	64
Chloride (Cl)	Top	18	17	17	17	24	T.	19
	Bottom	18	17	15	28	23	B.	20
Fluoride (F)	Bottom	.2		.2		.2	B.	.2
Nitrate (NO_3)	Bottom	8.2		8.5		7.7	B.	8.1
Dissolved solids	Bottom	201		198		183	B.	194
Hardness as $CaCO_3$	Bottom	99		76		81	B.	85
Suspended sediment	Top	Composite					T.	25

b Exceeded this value.

Table 14.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.--Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Marcus Hook, Pa. Date September 5, 1951 Sampling study No. 25
Weather Cloudy Water discharge at Trenton (cfs) 3,680

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:28 a.m.	10:30 a.m.	10:32 a.m.	10:34 a.m.	10:36 a.m.	
Sounding (ft)		18	41	46	37	15	
Temperature (°F)	Top	78	78	78	78	77	T. 78
	Bottom	78	78	78	78	77	B. 78
Color	Bottom	9		11		10	B. 10
pH	Top	6.5	6.5	6.4	6.4	6.6	T. 6.5
	Bottom	7.5	7.4	7.7	7.4	7.6	B. 7.5
Specific conductance (micromhos at 25°C)	Top	609	369	344	371	428	T. 424
	Bottom	587	335	332	383	410	B. 409
Dissolved oxygen	Top	.6	2.1	1.7	1.5	1.9	T. 1.6
B. O. D. (5-day, 20°C)	Top	5.0	6.2	6.4	4.4	4.8	T. 5.4
Silica (SiO_2)	Bottom	2.2		3.4		2.3	B. 2.6
Iron (Fe)	Bottom	.04		.05		.04	B. .04
Calcium (Ca)	Bottom	27		23		24	B. 25
Magnesium (Mg)	Bottom	13		8.9		10	B. 11
Sodium (Na)	Bottom	66		29		42	B. 46
Bicarbonate (HCO_3)	Bottom	40		40		36	B. 39
Sulfate (SO_4)	Bottom	88		71		78	B. 79
Chloride (Cl)	Top	102	36	28	36	54	T. 51
	Bottom	98	36	32	47	58	B. 54
Fluoride (F)	Bottom	.2		.2		.2	B. .2
Nitrate (NO_3)	Bottom	7.4		6.3		6.2	B. 6.6
Dissolved solids	Bottom	339		203		250	B. 264
Hardness as $CaCO_3$	Bottom	121		94		101	B. 105
Suspended sediment	Top	Composite					T. 32

Location Marcus Hook, Pa. Date October 1, 1951 Sampling study No. 26
Weather Clear Water discharge at Trenton (cfs) 3,040

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:45 p.m.	12:50 p.m.	12:52 p.m.	12:55 p.m.	12:58 p.m.	
Sounding (ft)		29	49	b50	48	29	
Temperature (°F)	Top	71	70	70	70	70	T. 70
	Bottom	70	69	70	69	70	B. 70
Color	Bottom	10		10		10	B. 10
pH	Top	6.2	6.3	6.2	6.3	6.3	T. 6.3
	Bottom	7.4	6.6	7.4	7.1	7.5	B. 7.2
Specific conductance (micromhos at 25°C)	Top	2,070	2,050	2,160	3,080	3,260	T. 2,520
	Bottom	2,560	3,200	3,330	3,320	3,020	B. 3,090
Dissolved oxygen	Top	1.8	3.4	2.0	2.4	3.0	T. 2.5
B. O. D. (5-day, 20°C)	Top	14.7	15.9	12.9	13.5	13.2	T. 14.0
Silica (SiO_2)	Bottom	3.0		2.6		3.2	B. 2.9
Iron (Fe)	Bottom	.05		.05		.05	B. .05
Calcium (Ca)	Bottom	47		50		48	B. 48
Magnesium (Mg)	Bottom	52		69		62	B. 61
Sodium (Na)	Bottom	395		520		478	B. 464
Bicarbonate (HCO_3)	Bottom	24		24		26	B. 25
Sulfate (SO_4)	Bottom	192		228		218	B. 213
Chloride (Cl)	Top	475	480	520	780	830	T. 617
	Bottom	680	900	930	985	865	B. 872
Fluoride (F)	Bottom	.2		.2		.2	B. .2
Nitrate (NO_3)	Bottom	4.9		3.6		4.2	B. 4.2
Dissolved solids	Bottom	1,430		1,900		1,770	B. 1,700
Hardness as $CaCO_3$	Bottom	331		408		375	B. 371
Suspended sediment	Top	Composite					T. 88

b Exceeded this value.

Table 14.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.--Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Marcus Hook, Pa. Date November 5, 1951 Sampling study No. 27
Weather Clear Water discharge at Trenton (cfs) 20,800

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		12:05 p.m.	12:10 p.m.	12:13 p.m.	12:15 p.m.	12:18 p.m.		
Sounding (ft)		8	40	45	42	39		
Temperature (°F)	Top	54	54	54	54	53	T.	54
	Bottom	54	52	52	52	53	B.	53
Color	Bottom	10		10		10	B.	10
pH	Top	6.4	6.4	6.5	6.5	6.5	T.	6.5
	Bottom	7.4	7.2	7.6	7.0	7.6	B.	7.4
Specific conductance (micromhos at 25°C)	Top	295	261	233	236	267	T.	258
	Bottom	274	229	229	218	268	B.	244
Dissolved oxygen	Top	2.9	3.4	3.8	3.9	3.5	T.	3.5
B. O. D. (5-day, 20°C)	Top	3.0	2.2	1.2	1.4	1.8	T.	1.9
Silica (SiO_2)	Bottom	6.0		5.5		5.5	B.	5.7
Iron (Fe)	Bottom	.01		.01		.01	B.	.01
Calcium (Ca)	Bottom	22		20		21	B.	21
Magnesium (Mg)	Bottom	8.2		7.0		7.8	B.	7.7
Sodium (Na)	Bottom	14		9.2		15	B.	13
Bicarbonate (HCO_3)	Bottom	33		34		32	B.	33
Sulfate (SO_4)	Bottom	66		50		63	B.	60
Chloride (Cl)	Top	16	14	12	12	14	T.	14
	Bottom	15	10	12	11	16	B.	13
Fluoride (F)	Bottom	.2		.1		.1	B.	.1
Nitrate (NO_3)	Bottom	6.4		6.6		6.9	B.	6.6
Dissolved solids	Bottom	185		154		181	B.	173
Hardness as $CaCO_3$	Bottom	89		79		84	B.	84
Suspended sediment	Top	Composite					T.	30

Location Marcus Hook, Pa. Date December 4, 1951 Sampling study No. 28
Weather Cloudy Water discharge at Trenton (cfs) 11,100

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		12:25 p.m.	12:20 p.m.	12:14 p.m.	12:12 p.m.	12:10 p.m.		
Sounding (ft)		26	37	47	45	40		
Temperature (°F)	Top	46	44	44	44	45	T.	45
	Bottom	44	44	44	43	43	B.	44
Color	Bottom	13		14		14	B.	14
pH	Top	6.3	6.4	7.4	6.4	6.4	T.	6.6
	Bottom	7.2	6.9	7.3	7.1	7.3	B.	7.2
Specific conductance (micromhos at 25°C)	Top	228	203	196	197	199	T.	205
	Bottom	208	195	191	175	192	B.	192
Dissolved oxygen	Top	5.7	5.8	5.8	6.2	5.7	T.	5.8
B. O. D. (5-day, 20°C)	Top	5.6	4.5	3.7	5.8	3.7	T.	4.7
Silica (SiO_2)	Bottom	7.8		7.9		7.5	B.	7.7
Iron (Fe)	Bottom	.01		.01		.01	B.	.01
Calcium (Ca)	Bottom	17		16		16	B.	16
Magnesium (Mg)	Bottom	5.2		5.3		5.2	B.	5.2
Sodium (Na)	Bottom	11		9.2		10	B.	10
Bicarbonate (HCO_3)	Bottom	22		22		22	B.	22
Sulfate (SO_4)	Bottom	49		46		47	B.	47
Chloride (Cl)	Top	14	10	9.0	8.0	10	T.	10
	Bottom	12	10	10	9.0	9.0	B.	10
Fluoride (F)	Bottom	.3		.2		.2	B.	.2
Nitrate (NO_3)	Bottom	7.1		6.2		7.0	B.	6.8
Dissolved solids	Bottom	142		133		134	B.	136
Hardness as $CaCO_3$	Bottom	64		62		61	B.	62
Suspended sediment	Top	Composite					T.	34

Table 14. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Marcus Hook, Pa. Date January 2, 1952 Sampling study No. 29
Weather Overcast Water discharge at Trenton (cfs) 21,800

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		12:30 p.m.	12:34 p.m.	12:36 p.m.	12:40 p.m.	12:45 p.m.		
Sounding (ft)		37	42	48	43	38		
Temperature (°F)	Top	40	39	38	38	38	T.	39
	Bottom	39	39	38	37	37	B.	38
Color	Bottom	5		5		5	B.	5
pH	Top	6.6	6.6	6.6	6.6	6.6	T.	6.6
	Bottom	7.1	7.0	7.0	7.1	7.1	B.	7.1
Specific conductance (micromhos at 25°C)	Top	170	162	162	160	159	T.	163
	Bottom	164	153	155	152	156	B.	156
Dissolved oxygen	Top	9.2	9.7	9.3	9.9	9.4	T.	9.5
B. O. D. (5-day, 20°C)	Top	6.7	4.1	3.2	3.8	3.2	T.	4.2
Silica (SiO_2)	Bottom	6.0		5.9		5.6	B.	5.8
Iron (Fe)	Bottom	.01		.01		.01	B.	.01
Calcium (Ca)	Bottom	16		15		14	B.	15
Magnesium (Mg)	Bottom	5.2		5.5		5.2	B.	5.5
Sodium (Na)	Bottom	a7.0		a4.5		a5.8	B.	a5.8
Bicarbonate (HCO_3)	Bottom	19		20		19	B.	19
Sulfate (SO_4)	Bottom	38		34		35	B.	36
Chloride (Cl)	Top	8.0	8.0	7.0	7.0	7.0	T.	7.4
	Bottom	9.5	7.0	8.0	7.0	7.5	B.	7.8
Fluoride (F)	Bottom	.2		.1		.1	B.	.1
Nitrate (NO_3)	Bottom	9.3		8.0		7.7	B.	8.3
Dissolved solids	Bottom	106		99		97	B.	101
Hardness as $CaCO_3$	Bottom	61		60		56	B.	59
Suspended sediment	Top	Composite					T.	33

a Calculated Sodium and Potassium.

Location Marcus Hook, Pa. Date February 6, 1952 Sampling study No. 30
Weather Clear Water discharge at Trenton (cfs) 43,400

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		11:54 a.m.	11:50 a.m.	11:46 a.m.	11:43 a.m.	11:40 a.m.		
Sounding (ft)		23	47	49	44	42		
Temperature (°F)	Top	41	40	39	39	40	T.	40
	Bottom	41	39	38	39	38	B.	39
Color	Bottom	9		9		9	B.	9
pH	Top	6.0	6.2	6.2	6.2	6.1	T.	6.1
	Bottom	6.2	7.5	6.4	7.4	6.3	B.	6.8
Specific conductance (micromhos at 25°C)	Top	192	155	150	150	149	T.	159
	Bottom	193	156	149	147	146	B.	158
Dissolved oxygen	Top	10.0	10.9	10.9	10.7	10.8	T.	10.7
B. O. D. (5-day, 20°C)	Top	3.4	4.4	4.2	4.1	4.1	T.	4.0
Silica (SiO_2)	Bottom	8.2		6.7		6.8	B.	7.2
Iron (Fe)	Bottom	.05		.05		.06	B.	.05
Calcium (Ca)	Bottom	17		12		12	B.	14
Magnesium (Mg)	Bottom	5.8		5.1		5.2	B.	5.4
Sodium (Na)	Bottom	6.5		5.4		5.4	B.	5.8
Bicarbonate (HCO_3)	Bottom	14		20		21	B.	18
Sulfate (SO_4)	Bottom	50		33		33	B.	39
Chloride (Cl)	Top	8.0	6.0	6.0	6.0	6.0	T.	6.4
	Bottom	7.5	6.0	5.5	6.0	6.0	B.	6.2
Fluoride (F)	Bottom	.3		.1		.1	B.	.2
Nitrate (NO_3)	Bottom	7.8		5.6		5.8	B.	6.4
Dissolved solids	Bottom	150		108		107	B.	122
Hardness as $CaCO_3$	Bottom	66		51		51	B.	56
Suspended sediment	Top	Composite					T.	40

Table 14. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Marcus Hook, Pa. Date March 3, 1952 Sampling study No. 31
Weather Overcast Water discharge at Trenton (cfs) 8,410

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:45 a.m.	11:48 a.m.	11:52 a.m.	11:55 a.m.	11:58 a.m.	
Sounding (ft)		23	44	47	41	38	
Temperature (°F)	Top	42	40	40	40	40	T. 40
	Bottom	41	40	40	39	39	B. 40
Color	Bottom	4		5		5	B. 5
pH	Top	6.1	6.2	6.2	6.2	6.2	T. 6.2
	Bottom	7.7	7.5	7.6	7.0	7.6	B. 7.5
Specific conductance (micromhos at 25°C)	Top	240	211	212	211	208	T. 216
	Bottom	227	208	205	210	204	B. 211
Dissolved oxygen	Top	7.5	7.8	8.1	8.1	8.3	T. 8.0
B. O. D. (5-day, 20°C)	Top	5.1	2.9	1.7	2.4	1.2	T. 2.7
Silica (SiO_2)	Bottom	9.8		10		14	B. 11
Iron (Fe)	Bottom	.08		.06		.06	B. .07
Calcium (Ca)	Bottom	17		17		16	B. 17
Magnesium (Mg)	Bottom	6.2		6.0		6.2	B. 6.1
Sodium (Na)	Bottom	11		10		11	B. 11
Bicarbonate (HCO_3)	Bottom	23		24		21	B. 23
Sulfate (SO_4)	Bottom	51		48		49	B. 49
Chloride (Cl)	Top	14	10	10	10	10	T. 11
	Bottom	10	11	10	11	10	B. 10
Fluoride (F)	Bottom	.2		.2		.2	B. .2
Nitrate (NO_3)	Bottom	11		8.2		11	B. 10
Dissolved solids	Bottom	138		126		134	B. 133
Hardness as $CaCO_3$	Bottom	68		67		65	B. 67
Suspended sediment	Top	Composite					T. 44

Location Marcus Hook, Pa. Date April 1, 1952 Sampling study No. 32
Weather Overcast Water discharge at Trenton (cfs) 20,800

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		10:45 a.m.	10:48 a.m.	10:51 a.m.	10:53 a.m.	10:56 a.m.	
Sounding (ft)		26	39	43	47	40	
Temperature (°F)	Top	50	50	49	49	48	T. 49
	Bottom	50	50	49	48	48	B. 49
Color	Bottom	3		3		3	B. 3
pH	Top	6.0	6.0	6.3	6.1	6.2	T. 6.1
	Bottom	6.9	7.5	6.8	6.9	6.8	B. 7.0
Specific conductance (micromhos at 25°C)	Top	151	153	141	138	132	T. 143
	Bottom	144	145	134	133	126	B. 136
Dissolved oxygen	Top	6.4	6.5	6.5	6.7	7.3	T. 6.7
B. O. D. (5-day, 20°C)	Top	3.7	3.9	1.7	1.3	.3	T. 2.4
Silica (SiO_2)	Bottom	7.1		7.0		6.4	B. 6.8
Iron (Fe)	Bottom	.04		.08		.06	B. .06
Calcium (Ca)	Bottom	12		12		11	B. 12
Magnesium (Mg)	Bottom	4.1		3.8		3.7	B. 3.9
Sodium (Na)	Bottom	11		6.6		6.4	B. 8.0
Bicarbonate (HCO_3)	Bottom	21		20		18	B. 20
Sulfate (SO_4)	Bottom	39		30		30	B. 33
Chloride (Cl)	Top	6.0	7.0	6.0	5.0	5.0	T. 5.8
	Bottom	6.6	6.0	5.9	6.0	5.2	B. 5.9
Fluoride (F)	Bottom	.2		.1		.1	B. .1
Nitrate (NO_3)	Bottom	7.5		7.4		6.8	B. 7.2
Dissolved solids	Bottom	111		92		90	B. 98
Hardness as $CaCO_3$	Bottom	47		46		43	B. 45
Suspended sediment	Top	Composite					T. 38

Table 14. --WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA. --Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Marcus Hook, Pa. Date May 6, 1952 Sampling study No. 33
Weather Cloudy Water discharge at Trenton (cfs) 16,600

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:13 p.m.	12:10 p.m.	12:06 p.m.	12:03 p.m.	12:00 n.	
Sounding (ft)		31	42	45	8	6	
Temperature (°F)	Top	59	59	59	59	59	T. 59
	Bottom	58	59	58	59	58	B. 58
Color	Bottom	6		6		7	B. 6
pH	Top	6.3	6.3	6.3	6.4	6.3	T. 6.3
	Bottom	6.8	6.3	6.7	6.2	6.5	B. 6.5
Specific conductance (micromhos at 25°C)	Top	167	164	151	145	145	T. 154
	Bottom	152	151	137	146	150	B. 147
Dissolved oxygen	Top	5.8	5.8	7.2	6.9	6.8	T. 6.5
B. O. D. (5-day, 20°C)	Top	2.4	2.3	3.0	.1	3.3	T. 2.2
Silica (SiO_2)	Bottom	7.8		8.2		10	B. 8.7
Iron (Fe)	Bottom	.04		.02		.08	B. .05
Calcium (Ca)	Bottom	14		13		13	B. 13
Magnesium (Mg)	Bottom	4.5		4.1		4.6	B. 4.4
Sodium (Na)	Bottom	5.8		5.1		5.1	B. 5.3
Bicarbonate (HCO_3)	Bottom	22		17		14	B. 18
Sulfate (SO_4)	Bottom	37		35		42	B. 38
Chloride (Cl)	Top	8.0	6.0	5.0	5.0	5.0	T. 5.8
	Bottom	5.8	4.0	5.4	5.0	5.8	B. 5.2
Fluoride (F)	Bottom	.2		.1		.1	B. .1
Nitrate (NO_3)	Bottom	2.8		5.6		3.5	B. 4.0
Dissolved solids	Bottom	93		88		99	B. 93
Hardness as $CaCO_3$	Bottom	53		49		51	B. 51
Suspended sediment	Top	Composite					T. 63

Location Marcus Hook, Pa. Date June 3, 1952 Sampling study No. 34
Weather Clear Water discharge at Trenton (cfs) 35,600

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:15 a.m.	11:18 a.m.	11:20 a.m.	11:22 a.m.	11:24 a.m.	
Sounding (ft)		27	47	49	45	36	
Temperature (°F)	Top	68	68	69	70	69	T. 69
	Bottom	67	69	68	68	68	B. 68
Color	Bottom	7		7		7	B. 7
pH	Top	6.4	6.5	6.5	6.6	6.7	T. 6.5
	Bottom	6.8	6.5	6.8	6.5	6.6	B. 6.6
Specific conductance (micromhos at 25°C)	Top	152	143	143	145	138	T. 144
	Bottom	147	142	138	138	130	B. 139
Dissolved oxygen	Top	4.3	4.4	4.4	4.5	5.3	T. 4.6
B. O. D. (5-day, 20°C)	Top	2.5	1.2	1.2	1.3	1.5	T. 1.6
Silica (SiO_2)	Bottom	7.2		6.9		6.9	B. 7.0
Iron (Fe)	Bottom	.04		.04		.04	B. .04
Calcium (Ca)	Bottom	13		13		12	B. 13
Magnesium (Mg)	Bottom	4.7		4.5		4.4	B. 4.5
Sodium (Na)	Bottom	5.9		4.9		4.6	B. 5.1
Bicarbonate (HCO_3)	Bottom	23		23		22	B. 23
Sulfate (SO_4)	Bottom	34		32		30	B. 32
Chloride (Cl)	Top	6.0	6.0	6.0	6.0	5.0	T. 5.8
	Bottom	5.5	6.0	5.0	5.0	4.5	B. 5.2
Fluoride (F)	Bottom	.1		.1		.1	B. .1
Nitrate (NO_3)	Bottom	7.2		6.6		6.5	B. 6.8
Dissolved solids	Bottom	95		90		88	B. 91
Hardness as $CaCO_3$	Bottom	52		51		48	B. 50
Suspended sediment	Top	Composite					T. 19

Table 14.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.--Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Marcus Hook, Pa. Date July 8, 1952 Sampling study No. 35
Weather Overcast Water discharge at Trenton (cfs) 3,280

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		11:10 a.m.	11:13 a.m.	11:16 a.m.	11:19 a.m.	11:25 a.m.		
Sounding (ft)		14	47	b50	b50	38		
Temperature (°F)	Top	80	80	80	80	80	T.	80
	Bottom	80	80	79	80	79	B.	80
Color	Bottom	10		7		9	B.	9
pH	Top	6.3	6.7	6.6	6.6	6.6	T.	6.6
	Bottom	7.2	6.7	7.1	6.6	6.7	B.	6.9
Specific conductance (micromhos at 25°C)	Top	508	280	268	277	333	T.	333
	Bottom	348	277	262	283	323	B.	299
Dissolved oxygen	Top	.9	1.0	1.0	.9	1.1	T.	1.0
B. O. D. (5-day, 20°C)	Top	2.2	1.0	3.4	1.0	.0	T.	1.5
Silica (SiO_2)	Bottom	5.5		6.0		7.3	B.	6.3
Iron (Fe)	Bottom	.01		.03		.02	B.	.02
Calcium (Ca)	Bottom	25		20		20	B.	22
Magnesium (Mg)	Bottom	8.4		7.3		8.2	B.	8.0
Sodium (Na)	Bottom	25		17		25	B.	22
Bicarbonate (HCO_3)	Bottom	32		36		29	B.	32
Sulfate (SO_4)	Bottom	71		55		59	B.	62
Chloride (Cl)	Top	92	22	20	23	39	T.	39
	Bottom	34	20	18	24	36	B.	26
Fluoride (F)	Bottom	.2		.2		.2	B.	.2
Nitrate (NO_3)	Bottom	10		12		9.3	B.	10
Dissolved solids	Bottom	204		157		187	B.	183
Hardness as $CaCO_3$	Bottom	97		80		84	B.	87
Suspended sediment	Top	Composite					T.	53

b Exceeded this value.

Location Marcus Hook, Pa. Date August 7, 1952 Sampling study No. 36
Weather Cloudy Water discharge at Trenton (cfs) 5,920

		Station					Average	
		Pennsylvania side	West Center	Center	East Center	New Jersey side		
Time (EST)		9:47 a.m.	9:49 a.m.	9:51 a.m.	9:53 a.m.	9:55 a.m.		
Sounding (ft)		13	47	46	45	36		
Temperature (°F)	Top	81	82	82	82	81	T.	82
	Bottom	81	81	81	81	81	B.	81
Color	Bottom	8		13		9	B.	10
pH	Top	6.7	6.8	6.7	6.7	6.7	T.	6.7
	Bottom	7.1	6.7	7.4	6.7	7.3	B.	7.0
Specific conductance (micromhos at 25°C)	Top	241	245	237	233	231	T.	237
	Bottom	225	239	219	229	217	B.	226
Dissolved oxygen	Top	.9	.9	1.1	1.0	.9	T.	1.0
B. O. D. (5-day, 20°C)	Top	2.0	2.0	2.8	2.1	.5	T.	1.9
Silica (SiO_2)	Bottom	6.2		6.2		5.5	B.	6.0
Iron (Fe)	Bottom	.04		.03		.02	B.	.03
Calcium (Ca)	Bottom	18		17		17	B.	17
Magnesium (Mg)	Bottom	6.3		6.1		6.0	B.	6.1
Sodium (Na)	Bottom	12		12		11	B.	12
Bicarbonate (HCO_3)	Bottom	33		32		31	B.	32
Sulfate (SO_4)	Bottom	39		38		38	B.	38
Chloride (Cl)	Top	15	15	14	14	13	T.	14
	Bottom	14	14	13	14	14	B.	14
Fluoride (F)	Bottom	.2		.3		.2	B.	.2
Nitrate (NO_3)	Bottom	14		14		16	B.	15
Dissolved solids	Bottom	137		135		131	B.	134
Hardness as $CaCO_3$	Bottom	71		68		67	B.	69
Suspended sediment	Top	Composite					T.	46

Table 14.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.--Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Marcus Hook, Pa. Date September 4, 1952 Sampling study No. 37
Weather Clear Water discharge at Trenton (cfs) 27,100

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:15 a.m.	11:17 a.m.	11:19 a.m.	11:21 a.m.	11:23 a.m.	
Sounding (ft)		23	49	b50	44	12	
Temperature (°F)	Top	79	79	78	78	78	T. 78
	Bottom	79	78	78	79	77	B. 78
Color	Bottom	5		7		8	B. 7
pH	Top	6.6	6.9	6.5	6.6	6.6	T. 6.6
	Bottom	7.2	6.6	7.4	6.3	7.2	B. 6.9
Specific conductance (micromhos at 25°C)	Top	378	238	250	252	250	T. 274
	Bottom	285	250	240	243	251	B. 254
Dissolved oxygen	Top	2.0	1.9	2.1	2.4	2.8	T. 2.2
B. O. D. (5-day, 20°C)	Top	2.6	1.4	1.2	.4	1.6	T. 1.4
Silica (SiO_2)	Bottom	3.6		3.9		4.6	B. 4.0
Iron (Fe)	Bottom	.03		.03		.04	B. .03
Calcium (Ca)	Bottom	26		20		19	B. 22
Magnesium (Mg)	Bottom	9.5		9.4		9.1	B. 9.3
Sodium (Na)	Bottom	a8.3		a7.6		a11	B. a9.0
Bicarbonate (HCO_3)	Bottom	30		32		32	B. 31
Sulfate (SO_4)	Bottom	72		54		54	B. 60
Chloride (Cl)	Top	16	14	14	15	18	T. 15
	Bottom	13	16	12	14	16	B. 14
Fluoride (F)	Bottom	.2		.1		.1	B. .1
Nitrate (NO_3)	Bottom	4.3		6.9		4.9	B. 5.4
Dissolved solids	Bottom	177		149		152	B. 159
Hardness as $CaCO_3$	Bottom	104		89		85	B. 93
Suspended sediment	Top	Composite					T. 14

a Calculated Sodium and Potassium.
b Exceeded this value.

Location Marcus Hook, Pa. Date October 7, 1952 Sampling study No. 38
Weather Clear Water discharge at Trenton (cfs) 43,120

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		11:45 a.m.	11:48 a.m.	11:51 a.m.	11:54 a.m.	11:57 a.m.	
Sounding (ft)		21	45	46	41	7	
Temperature (°F)	Top	68	68	69	68	67	T. 68
	Bottom	69	68	68	67	66	B. 68
Color	Bottom	5		5		5	B. 5
pH	Top	6.5	6.6	6.3	6.3	6.3	T. 6.4
	Bottom	6.7	6.3	7.6	6.5	7.5	B. 6.9
Specific conductance (micromhos at 25°C)	Top	403	326	306	330	423	T. 358
	Bottom	463	317	303	354	431	B. 374
Dissolved oxygen	Top	2.4	1.6	1.9	2.6	4.1	T. 2.5
B. O. D. (5-day, 20°C)	Top	3.8	1.6	1.1	2.2	3.1	T. 2.4
Silica (SiO_2)	Bottom	4.9		4.4		4.7	B. 4.7
Iron (Fe)	Bottom	.04		.04		.06	B. .05
Calcium (Ca)	Bottom	30		21		21	B. 24
Magnesium (Mg)	Bottom	10		8.2		10	B. 9.4
Sodium (Na)	Bottom	38		19		41	B. 33
Bicarbonate (HCO_3)	Bottom	22		32		28	B. 27
Sulfate (SO_4)	Bottom	88		58		65	B. 70
Chloride (Cl)	Top	51	32	28	34	61	T. 41
	Bottom	65	30	30	42	69	B. 47
Fluoride (F)	Bottom	.9		.3		.3	B. .5
Nitrate (NO_3)	Bottom	19		16		15	B. 17
Dissolved solids	Bottom	280		191		257	B. 243
Hardness as $CaCO_3$	Bottom	116		87		94	B. 99
Suspended sediment	Top	Composite					T. 32

Table 14.--WATER ANALYSES OF DELAWARE RIVER BETWEEN BRISTOL AND MARCUS HOOK, PA.--Continued
Analyzed by City of Philadelphia and U. S. Geological Survey; analyses in parts per million

Location Marcus Hook, Pa. Date November 12, 1952 Sampling study No. 39
Weather Clear Water discharge at Trenton (cfs) 2,550

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:30 p.m.	12:35 p.m.	12:40 p.m.	12:45 p.m.	12:50 p.m.	
Sounding (ft)		28	35	46	40	14	
Temperature (°F)	Top	51	50	51	51	49	T. 50
	Bottom	51	51	50	51	49	B. 50
Color	Bottom	5		3		5	B. 4
pH	Top	6.3	6.3	6.3	6.3	6.4	T. 6.3
	Bottom	6.9	6.4	7.1	6.3	7.2	B. 6.8
Specific conductance (micromhos at 25°C)	Top	1,880	1,710	1,750	1,740	1,690	T. 1,750
	Bottom	1,910	1,880	1,810	1,800	1,670	B. 1,810
Dissolved oxygen	Top	5.4	4.1	4.8	4.7	5.2	T. 4.8
B. O. D. (5-day, 20°C)	Top	10.2	8.3	10.0	10.1	8.6	T. 9.4
Silica (SiO_2)	Bottom	4.4		3.5		3.8	B. 3.9
Iron (Fe)	Bottom	.03		.04		.03	B. .03
Calcium (Ca)	Bottom	39		37		35	B. 37
Magnesium (Mg)	Bottom	40		40		38	B. 39
Sodium (Na)	Bottom	248		245		215	B. 236
Bicarbonate (HCO_3)	Bottom	22		26		26	B. 25
Sulfate (SO_4)	Bottom	160		153		146	B. 153
Chloride (Cl)	Top	480	430	435	435	423	T. 440
	Bottom	492	480	470	458	428	B. 466
Fluoride (F)	Bottom	.5		.5		.5	B. .5
Nitrate (NO_3)	Bottom	13		12		13	B. 13
Dissolved solids	Bottom	1,110		1,050		965	B. 1,040
Hardness as $CaCO_3$	Bottom	262		257		244	B. 254
Suspended sediment	Top	Composite					T. 55

Location Marcus Hook, Pa. Date December 5, 1952 Sampling study No. 40
Weather Rain Water discharge at Trenton (cfs) 12,600

		Station					
		Pennsylvania side	West Center	Center	East Center	New Jersey side	Average
Time (EST)		12:40 p.m.	12:43 p.m.	12:46 p.m.	12:49 p.m.	12:52 p.m.	
Sounding (ft)		15	43	b50	35	26	
Temperature (°F)	Top	48	48	48	48	47	T. 48
	Bottom	48	48	47	48	47	B. 48
Color	Bottom	3		10		15	B. 9
pH	Top	5.7	5.7	5.7	5.7	5.7	T. 5.7
	Bottom	6.3	5.7	6.6	5.7	6.9	B. 6.2
Specific conductance (micromhos at 25°C)	Top	187	172	168	162	162	T. 170
	Bottom	184	175	167	165	162	B. 171
Dissolved oxygen	Top	7.0	7.0	7.6	7.6	7.5	T. 7.3
B. O. D. (5-day, 20°C)	Top	4.7	4.1	3.1	4.3	3.0	T. 3.8
Silica (SiO_2)	Bottom	5.4		5.0		6.3	B. 5.6
Iron (Fe)	Bottom	.06		.06		.08	B. .07
Calcium (Ca)	Bottom	15		13		12	B. 13
Magnesium (Mg)	Bottom	5.0		6.0		6.0	B. 5.7
Sodium (Na)	Bottom	7.7		a4.4		a6.2	B. —
Bicarbonate (HCO_3)	Bottom	13		14		12	B. 13
Sulfate (SO_4)	Bottom	45		37		37	B. 40
Chloride (Cl)	Top	10	10	10	9.0	10	T. 9.8
	Bottom	9.5	—	8.0	—	9.0	B. 8.8
Fluoride (F)	Bottom	.3		.1		.1	B. .2
Nitrate (NO_3)	Bottom	6.1		6.3		8.3	B. 6.9
Dissolved solids	Bottom	124		111		111	B. 115
Hardness as $CaCO_3$	Bottom	58		57		55	B. 57
Suspended sediment	Top	Composite					T. 50

a Calculated Sodium and Potassium.
b Exceeded this value.

Table 15. -- SCHUYLKILL RIVER AT BELMONT FILTERS, PHILADELPHIA, PA.

Chemical analyses, in parts per million, water year October 1949 to September 1950

Date of collection	Mean discharge (cfs)	Temperature (° F)	Color	pH	Specific conductance (micromhos at 25° C)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																		Total	Noncarbonate
Oct. 1-10, 1949	388	66	7	6.9	492	3.5	0.10	46	22	19		85	135	21	0.2	7.0	341	205	136
Oct. 11-20	261	68	7	6.8	478	3.3	.08	44	22	14		88	115	23	.2	7.7	326	200	128
Oct. 21-31	368	62	8	7.9	497	3.9	.04	46	20	14		89	128	10	.2	6.8	318	197	124
Nov. 1-10	476	54	7	7.6	447	4.2	.04	43	18	10		74	121	8.0	.1	6.6	289	181	121
Nov. 11-20	470	54	8	7.8	436	4.3	.04	42	18	9.1		76	113	8.5	.2	7.6	282	179	116
Nov. 21-30	351	44	6	6.9	435	10	.04	44	18	12		69	120	16	.1	8.3	278	184	127
Dec. 1-10	348	39	8	6.7	447	10	.04	44	18	16		71	121	18	.2	10	286	184	126
Dec. 11-20	1,496	39	7	6.8	378	10	.06	38	15	11		53	106	14	.1	8.0	240	156	113
Dec. 21-31	3,147	40	11	6.8	291	10	.06	30	11	8.1		48	75	9.2	.1	8.8	182	120	81
Jan. 1-10, 1950	2,057	42	8	6.9	272	9.7	.05	26	10	7.8		38	70	7.8	.2	9.1	174	106	75
Jan. 11-20	2,870	41	6	6.9	261	9.2	.04	25	10	5.6		32	69	7.0	.1	9.4	166	104	77
Jan. 21-31	1,369	40	6	6.9	321	9.9	.04	31	13	5.9		40	87	9.2	.2	8.3	203	131	98
Feb. 1-10	4,735	39	8	6.8	245	8.2	.03	23	9.0	9.8		36	65	7.6	.2	8.9	154	94	65
Feb. 11-20	8,587	38	8	6.9	201	7.6	.03	20	7.3	5.8		32	49	5.9	.1	8.5	124	80	54
Feb. 21-28	3,007	36	7	7.0	259	8.3	.03	25	10	7.6		37	69	7.5	.1	8.8	162	104	73
Mar. 1-10	1,997	35	10	6.9	312	9.8	.05	31	12	8.0		47	82	8.9	.1	9.2	200	127	88
Mar. 11-20	2,845	39	10	7.0	272	9.6	.05	26	10	6.4		38	68	7.9	.2	7.6	172	106	75
Mar. 21-31	10,280	42	12	6.9	206	8.2	.05	20	7.6	4.3		33	48	5.2	.2	7.0	132	81	54
Apr. 1-10	3,928	48	8	7.0	265	8.9	.05	26	10	5.8		30	76	6.4	.2	6.4	170	106	81
Apr. 11-20	1,943	50	3	7.0	315	7.8	.02	30	13	10		42	93	7.9	.1	9.3	216	128	94
Apr. 21-30	1,874	53	3	7.0	331	7.6	.04	32	14	9.1		47	97	8.8	.1	6.3	231	137	99
May 1-10	2,315	53	3	7.1	290	6.2	.04	28	12	8.0		43	81	7.6	.2	7.2	200	119	84
May 11-20	2,102	64	3	7.0	309	7.1	.04	30	13	9.1		49	86	8.5	.2	7.2	214	128	88
May 21-31	3,626	63	3	7.0	244	9.0	.04	25	8.8	6.7		44	61	6.2	.1	5.8	164	99	63
June 1-10	3,678	61	4	7.1	244	9.1	.04	26	9.3	4.9		45	61	5.9	.1	6.0	171	103	66
June 11-20	1,692	73	2	7.1	306	9.4	.04	30	12	9.8		48	85	8.0	.1	7.5	210	124	85
June 21-30	967	66	4	6.7	351	10	.04	36	15	5.0		59	91	10	.1	6.2	228	152	103
July 1-10	1,040	79	4	6.8	439	8.8	.05	46	20	7.4		57	138	12	.1	6.9	300	197	150
July 11-20	2,145	76	5	6.7	329	8.7	.05	34	14	4.0		43	96	8.0	.1	5.5	222	142	107
July 21-31	890	80	4	6.7	405	7.7	.04	42	17	7.8		54	121	12	.1	5.2	270	175	130
Aug. 1-10	984	79	4	7.1	406	9.1	.04	40	17	12		59	118	14	.2	5.4	259	170	121
Aug. 11-20	408	70	5	7.1	466	12	.01	44	19	16		69	130	18	.2	6.5	299	188	131
Aug. 21-31	561	78	4	7.0	503	10	.12	48	22	13		66	146	19	.2	6.4	331	210	156
Sept. 1-10	484	78	4	7.0	437	8.9	.02	41	18	12		69	111	18	.2	6.7	279	176	120
Sept. 11-20	1,914	72	6	7.0	323	13	.03	31	13	7.5		52	82	10	.2	5.7	203	131	88
Sept. 21-30	526	65	8	7.2	401	16	.02	38	16	13		78	94	15	.2	6.2	256	161	97
Average	2,411	56	6	--	358	8.6	0.04	34	14	9.3		54	95	11	0.2	7.3	233	144	100

Table 15. --SCHUYLKILL RIVER AT BELMONT FILTERS, PHILADELPHIA, PA. --Continued

Chemical analyses, in parts per million, water year October 1950 to September 1951

Date of collection	Mean discharge (cfs)	Temperature (° F.)	Color	pH	Specific conductance (micromhos at 25° C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																		Total	Noncarbonate
Oct. 1-10, 1950	370	68	8	7.2	457	13	0.02	43	18	16		80	113	19	0.2	7.1	292	181	116
Oct. 11-20	994	63	5	7.0	408	8.4	.06	39	17	15		61	119	14	.1	7.6	268	167	117
Oct. 21-31	875	61	8	7.0	355	7.3	.06	34	14	13		60	93	13	.1	6.8	222	142	93
Nov. 1-10	1,505	61	5	7.0	358	7.4	.06	34	15	12		61	94	13	.1	7.1	229	147	97
Nov. 11-20	897	54	5	7.0	330	8.1	.05	32	13	7.1		57	76	12	.1	7.2	203	133	87
Nov. 21-25	6,818	50	5	7.2	371	7.8	.06	35	15	8.4		55	94	13	.1	7.2	234	149	104
Nov. 26-30	21,074	50	5	6.9	203	7.7	.06	17	7.6	6.9		21	58	5.1	.1	4.6	130	74	56
Dec. 1-10	12,050	45	4	6.7	243	7.5	.02	26	10	1.8		20	79	5.4	.1	4.2	153	106	90
Dec. 11-20	4,591	40	3	6.8	285	8.2	.02	27	12	3.7		25	87	6.5	.1	5.2	182	117	96
Dec. 21-31	1,861	36	5	6.8	359	9.4	.05	34	16	9.5		36	116	9.2	.1	9.7	244	151	121
Jan. 1-10, 1951	2,485	38	5	6.9	332	8.5	.06	32	15	5.7		37	100	9.2	.1	7.9	222	142	111
Jan. 11-20	4,779	38	6	6.9	257	7.3	.08	24	11	6.3		36	68	8.0	.1	8.7	167	105	76
Jan. 21-31	5,436	40	4	6.8	241	5.0	.05	22	9.7	7.9		30	70	6.5	.1	6.4	151	95	70
Feb. 1-10	8,415	38	3	6.8	230	4.6	.07	22	9.6	4.6		26	66	6.0	.1	7.0	142	94	73
Feb. 11-20	5,109	37	3	6.9	250	5.5	.06	24	11	4.4		31	72	6.0	.2	6.7	155	105	80
Feb. 21-28	7,221	41	3	7.2	224	11	.09	22	9.5	4.1		33	60	5.4	.1	6.9	144	94	67
Mar. 1-10	4,389	45	2	7.4	258	12	.06	25	12	4.6		39	72	6.4	.1	6.9	169	112	80
Mar. 11-20	3,750	45	1	7.5	275	12	.06	26	12	6.8		43	75	7.2	.0	6.9	178	114	79
Mar. 21-31	5,253	47	3	7.3	240	11	.07	23	10	5.6		38	63	6.0	.0	6.7	150	98	67
Apr. 1-10	4,425	51	2	7.0	257	8.7	.05	23	11	5.2		33	71	6.4	.1	4.6	170	103	76
Apr. 11-20	5,172	54	3	7.1	250	8.6	.08	24	10	6.0		37	68	6.1	.2	4.8	162	101	71
Apr. 21-30	2,940	55	3	7.3	281	7.7	.05	27	12	6.6		42	79	7.6	.1	4.3	188	117	82
May 1-10	2,023	64	3	7.3	304	6.5	.08	28	13	7.4		48	82	7.9	.2	3.8	200	123	84
May 11-20	1,361	64	3	7.2	344	6.6	.04	33	15	11		60	95	9.8	.2	6.6	216	144	95
May 21-31	1,290	69	5	7.4	358	7.2	.04	34	17	8.3		65	95	10	.2	7.4	226	155	102
June 1-10	1,138	74	4	7.4	355	8.9	.03	34	16	9.5		64	95	9.5	.2	7.4	226	151	98
June 11-20	1,425	72	4	7.7	375	12	.03	34	16	8.9		62	96	10	.1	6.1	238	151	100
June 21-30	1,385	82	4	7.4	376	9.8	.02	35	17	6.7		62	98	10	.1	5.7	237	157	106
July 1-10	1,504	82	3	7.4	315	11	.02	29	13	6.5		56	75	7.5	.1	6.3	195	126	80
July 11-20	1,253	83	5	7.5	354	8.2	.07	32	15	8.3		60	88	9.8	.1	6.0	218	142	92
July 21-31	1,480	80	5	7.3	366	10	.03	32	16	7.6		59	99	4.5	.1	5.2	228	146	97
Aug. 1-10	921	78	4	7.5	388	7.8	.01	34	19	13		30	137	14	.1	5.1	266	163	138
Aug. 11-20	1,312	82	4	7.4	438	8.1	.03	37	20	20		38	157	14	.1	4.2	280	175	143
Aug. 21-31	633	79	5	7.2	427	5.6	.04	36	19	15		42	137	14	.1	4.2	279	168	134
Sept. 1-10	771	76	4	7.6	446	6.6	.01	39	19	16		50	139	14	.1	4.8	282	175	134
Sept. 11-20	650	75	4	7.8	475	5.8	.03	42	20	18		52	148	18	.1	6.0	310	187	144
Sept. 21-30	362	73	5	7.8	510	6.6	.01	45	22	19		57	163	17	.1	5.2	331	203	156
Average	3,434	59	4	--	332	8.3	0.05	31	14	9.1		46	95	9.8	0.1	6.2	213	135	98

Table 15.--SCHUYLKILL RIVER AT BELMONT FILTERS, PHILADELPHIA, PA.--Continued

Chemical analyses, in parts per million, water year October 1951 to September 1952

Date of collection	Mean discharge (cfs)	Temperature (° F.)	Color	pH	Specific conductance (micromhos at 25° C.)	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	
																		Total	Noncarbonate
Oct. 4-9, 1951	610	70	4	6.9	555	7.2	0.08	48	27	21		57	188	20	0.2	6.2	356	231	184
Oct. 12-13, 15-20	527	61	3	6.9	490	12	.07	42	23	17		46	165	16	.2	5.8	312	199	162
Oct. 21-31	580	63	4	6.9	522	10	.08	44	24	20		56	169	18	.2	5.8	330	208	163
Nov 2	4,740	58	3	7.0	504	--	--	--	--	30		52	168	17	--	1.2	--	178	135
Nov. 3-10	10,320	50	7	6.6	247	4.1	.06	25	11	8.7		31	82	8.5	.1	4.4	169	108	82
Nov. 11-20	3,540	49	3	6.8	270	11	.16	24	12	5.6		25	81	7.5	.1	7.2	172	109	89
Nov. 21-30	2,360	42	3	7.1	308	11	.08	28	14	7.9		32	96	9.0	.1	6.8	194	127	101
Dec. 1-10	4,890	53	5	7.1	280	9.2	.11	26	12	5.0		27	83	8.0	.1	6.2	177	114	92
Dec. 11-20	2,650	42	5	7.1	290	12	.09	26	13	3.7		28	85	7.0	.1	5.9	181	118	95
Dec 21-31	8,170	38	8	6.9	252	8.5	.08	22	10	8.5		34	63	11	.1	6 6	149	96	68
Jan. 1-10, 1952	6,980	40	10	7.2	241	8.5	.09	22	10	4.7		33	60	8.0	.1	6.3	143	96	69
Jan. 11-20	4,300	40	8	7.2	286	8.4	.09	26	12	5.3		39	73	8.0	.1	7.8	170	114	82
Jan. 21-31	8,900	39	5	7.1	232	7.5	.12	21	9.5	5.1		32	56	9.0	.1	6.2	137	91	65
Feb. 1-10	7,430	40	5	7.0	234	7.3	.11	21	9.7	3.9		33	56	7.0	.1	6.5	136	92	65
Feb. 11-20	3,540	39	5	7.3	291	8.4	.08	26	13	5.2		42	74	8.5	.1	7.4	174	118	84
Feb. 21-29	2,300	42	5	7.3	327	8.4	.12	29	14	6.1		48	83	8.0	.2	7.0	198	130	91
Mar. 2-10	3,070	41	5	7.3	312	8.6	.08	28	13	7.3		47	76	11	.2	6.9	187	123	85
Mar. 11-20	11,200	44	8	7.1	223	7.8	.14	20	9.4	4.3		30	55	8.0	.1	5.7	133	89	64
Mar. 21-31	5,540	47	8	6.3	248	7.4	.07	23	11	3.0		32	64	8.0	.1	6.1	150	103	76
Apr. 1-10	6,270	52	5	7.3	252	6.9	.11	22	11	6.5		36	67	7.0	.1	6.0	154	100	71
Apr. 11-17	7,500	56	5	7.1	231	6.5	.06	21	10	3.5		33	59	6.0	.1	4.9	140	94	66
Apr. 21-30	12,700	62	5	7.0	229	6.5	.06	22	9.9	1.5		34	57	5.0	.1	5.4	136	96	68
May 1-10	5,930	57	5	7.0	246	6.9	.07	23	11	1.8		37	62	5.0	.1	5.5	148	103	72
May 11-20	4,800	62	5	7.1	277	6.5	.05	26	13	1.7		36	78	6.0	.1	3.2	171	118	89
May 21-31	7,430	64	5	7.0	244	6.9	.03	23	11	1.6		37	62	6.0	.1	3.2	150	103	72
June 1-10	5,685	70	5	7.2	259	7.9	.06	24	12	1.5		44	63	6.0	.1	2.8	157	109	73
June 11-20	1,820	77	5	7.3	339	4.8	.07	32	17	1.7		56	88	9.0	.2	3.4	206	150	104
June 21-30	1,345	77	5	7.2	390	6.8	.08	36	18	6.9		61	104	12	.2	3.9	240	164	114
July 1-10	2,940	82	2	7.2	396	9.6	.01	40	18	12	2.4	75	103	11	.2	6.8	282	174	112
July 11-20	2,803	81	7	6.9	273	10	.00	27	12	6.2	2.1	45	73	6.0	.1	7.0	202	117	80
July 21-31	1,290	85	5	7.1	367	8.8	.01	38	15	10	2.5	52	111	9.0	.1	6.3	262	156	114
Aug. 1-10	1,430	82	5	7.1	382	3.5	.02	37	17	9.5		58	111	12	.1	6.8	257	162	115
Aug. 11-20	2,120	80	5	7.0	340	5.8	.01	34	15	9.2	2.4	48	94	10	.1	6.6	201	147	107
Aug. 21-31	1,130	78	5	7.0	349	3.1	.00	34	15	10	2.3	45	104	10	.1	5.4	229	147	110
Sept. 1-10	6,510	73	5	7.0	257	13	.01	25	11	6.6		43	70	6.0	.2	6.0	157	108	72
Sept. 11-20	1,840	75	5	7.0	362	7.0	.02	36	15	12		52	111	10	.2	6.6	226	152	114
Sept. 21-30	1,170	70	8	7.0	358	4.8	.01	35	15	12		59	102	11	.2	6.6	228	149	100
Average	4,756	57	5	--	308	7.8	0.07	29	14	7.4		42	86	9.0	0.1	5.9	195	127	93

Table 16.--DELAWARE RIVER AT TRENTON, N. J. (MORRISVILLE, PA.)

Suspended sediment, water year October 1949 to September 1950

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1	3,590	9	87	3,340	9	81	4,970	6	80
2	3,940	8	85	3,430	8	74	4,750	4	51
3	3,680	7	70	3,460	7	65	4,860	5	66
4	3,520	5	48	3,750	10	101	4,900	6	79
5	3,280	3	27	3,910	10	106	4,360	6	71
6	2,960	4	32	4,110	14	155	4,040	4	44
7	2,930	6	48	4,220	10	114	3,780	6	61
8	3,020	6	49	4,280	10	116	4,040	6	65
9	3,160	6	51	3,940	10	106	3,850	4	42
10	3,040	6	49	3,810	9	93	3,370	4	36
11	2,790	5	38	3,590	10	97	3,070	4	33
12	2,630	4	28	3,400	10	92	3,490	9	85
13	2,760	4	30	3,310	10	89	4,250	14	161
14	3,160	6	51	3,400	14	129	23,900	328	s 25,200
15	2,740	4	30	4,710	23	292	31,900	121	s 10,900
16	2,530	4	27	7,130	75	s 1,520	20,100	48	2,600
17	2,290	5	31	8,120	65	1,430	14,300	12	463
18	2,220	5	30	6,900	27	503	11,900	4	129
19	2,090	4	23	6,290	13	221	10,600	3	86
20	2,390	5	32	6,040	8	130	10,600	2	57
21	2,500	6	40	5,430	4	59	11,000	2	59
22	2,320	4	25	5,120	9	124	10,300	2	56
23	2,140	4	23	5,430	10	147	9,710	1	26
24	2,020	2	11	5,550	7	105	9,990	1	27
25	2,020	2	11	5,090	6	82	13,600	4	147
26	2,190	2	12	4,530	5	61	12,600	1	34
27	2,440	2	13	4,220	6	68	17,300	171	s 8,550
28	2,960	4	32	4,460	4	48	20,900	117	6,600
29	2,930	6	48	4,320	6	70	22,400	78	4,720
30	2,990	5	40	4,530	6	73	18,900	28	1,430
31	3,100	4	33	--	--	--	15,300	15	620
Total	86,320	--	1,150	139,820	--	6,350	339,030	--	62,580
	January			February			March		
1	12,700	11	377	12,800	8	276	8,570	2	46
2	11,400	9	277	13,200	5	178	8,770	3	71
3	11,100	8	240	14,300	11	425	8,220	4	89
4	10,800	13	379	12,700	12	411	7,220	3	59
5	11,100	9	270	11,400	6	185	7,400	2	40
6	11,300	3	92	10,300	3	83	7,080	1	19
7	13,000	9	316	9,900	4	108	7,260	4	76
8	23,200	40	s 2,550	9,880	6	160	7,690	2	42
9	22,900	32	1,980	10,600	4	114	16,700	59	s 3,340
10	18,200	15	737	13,600	18	661	34,700	194	18,900
11	21,300	22	1,270	13,900	16	600	35,700	160	15,400
12	26,300	30	2,130	15,300	12	496	25,300	40	2,730
13	21,800	20	1,180	14,400	8	311	23,200	21	1,320
14	13,200	10	491	17,200	15	697	22,200	22	1,320
15	17,400	12	564	23,100	48	2,990	18,700	16	808
16	16,700	9	406	21,300	41	2,360	16,200	15	656
17	14,500	13	509	19,300	44	2,290	14,800	12	480
18	13,600	10	367	17,900	22	1,060	14,000	16	605
19	12,800	9	311	16,000	11	475	13,100	10	354
20	11,600	11	345	14,100	10	381	12,000	5	162
21	9,820	8	212	11,700	8	253	12,700	6	206
22	8,820	8	191	11,200	7	212	19,200	35	1,810
23	8,270	8	179	10,400	7	197	28,800	209	s 16,900
24	8,420	8	182	10,100	7	191	31,200	184	15,500
25	9,290	6	150	10,900	4	118	28,100	57	4,320
26	10,200	5	138	10,600	2	57	24,000	24	1,560
27	11,200	6	181	8,770	2	47	24,200	19	1,240
28	11,400	5	154	7,930	2	43	25,700	21	1,460
29	11,100	6	180	--	--	--	45,200	184	s 27,600
30	10,400	8	225	--	--	--	74,100	343	68,700
31	11,100	6	180	--	--	--	55,700	99	s 14,900
Total	429,920	--	16,760	372,870	--	15,380	677,710	--	200,700

s Computed by subdividing day.

Table 16.--DELAWARE RIVER AT TRENTON, N. J. (MORRISVILLE, PA.)--Continued

Suspended sediment, water year October 1949 to September 1950--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1	42,000	43	4,880	12,300	5	166	15,000	12	486
2	35,700	26	2,510	14,900	5	201	17,700	22	1,050
3	32,300	18	1,570	17,000	8	367	17,600	20	950
4	36,600	16	1,580	15,600	10	421	16,500	13	579
5	57,000	71	10,900	14,100			18,500	22	1,100
6	76,600	191	39,500	14,500	3	120	18,900	24	1,220
7	55,000	87	12,900	15,900			16,200	13	569
8	36,700	31	3,070	13,800			14,000	12	454
9	28,400	20	1,530	12,500			12,200	8	264
10	23,700	12	768	11,700	2	66	11,000	10	297
11	20,900	9	508	11,000			10,200	12	330
12	18,900	7	357	11,600			10,200	14	386
13	17,700	8	382	11,000			10,200	14	386
14	16,800	7	318	9,820	2	56	9,710	12	315
15	15,600	5	211	8,720			10,200		
16	14,400	5	194	8,770	12	284	11,700	12	353
17	13,100	3	106	9,560			11,400		
18	12,300	4	133	9,500			10,200		
19	12,300	10	332	11,900	10	315	9,450		
20	12,500	6	202	15,700			10,200		
21	14,300	12	463	16,100			9,990	10	264
22	20,200	18	982	14,900			9,400		
23	18,100	14	684	13,300	14	572	9,290		
24	15,500	8	335	14,600			8,520		
25	15,000	5	202	16,700			7,780	8	180
26	15,000	4	162	17,200			7,690		
27	14,200	4	153	15,700			9,290		
28	14,400	4	156	14,100	16	659	8,930	11	256
29	13,300	6	215	14,000			7,640		
30	12,300	5	166	17,200	22	1,020	6,950	7	131
31	--	--	--	16,600	17	762	--	--	---
Total	730,800	--	85,470	420,270	--	10,830	346,540	--	12,480

Day	July			August			September		
1	6,820	7	126	4,710	2	26	4,460	20	241
2	6,510			5,090			4,040	6	65
3	5,590			7,820			4,140	9	101
4	5,430			7,220	19	374	5,840	27	426
5	5,630	5	77	6,860			5,800	15	235
6	6,130			6,290			4,860	8	105
7	8,320			5,630	6	97	4,360	8	94
8	7,690	10	199	4,900	6	79	4,010	4	43
9	6,680			4,780	9	116	3,720	4	40
10	6,770			4,750	10	128	3,700	14	s215
11	6,770	8	146	4,600	10	124	7,180	230	4,460
12	10,700	38	1,100	4,680	11	139	6,340	55	941
13	11,000			4,320	9	105	6,290	30	509
14	12,200			3,880	10	105	6,900	32	598
15	12,500	30	958	3,160	6	51	6,770	20	366
16	11,600			2,960	6	48	6,170	15	250
17	9,560			3,430	5	46	5,590	8	121
18	8,220			3,340	7	63	4,930	6	80
19	7,880	13	290	3,340	6	54	4,280	5	58
20	7,360			4,390	28	332	4,180	5	56
21	7,000			6,460	50	872	4,390	6	71
22	7,130	8	151	6,640	31	556	4,280	6	69
23	7,500			7,360	30	596	4,040	4	44
24	6,250			5,960	14	225	4,080	3	33
25	5,710			5,010	8	108	3,850	2	21
26	6,420	6	98	4,680	7	89	3,310	2	18
27	7,310			4,140	6	67	3,220	2	17
28	7,180	4	75	3,780	5	51	3,850	1	10
29	6,290			3,280	5	44	3,650	1	9.9
30	5,710			3,460	4	37	3,400	1	9.2
31	4,930	2	29	5,430	91	1,330	--	--	--
Total	234,790	--	8,680	152,350	--	6,730	141,630	--	9,300

Total discharge for year (second-foot days) 4,072,050

Total load for year (tons) 436,410

s Computed by subdividing day.

Table 16. -- DELAWARE RIVER AT TRENTON, N. J. (MORRISVILLE, PA.)--Continued

Suspended sediment, water year October 1950 to September 1951

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1	3,070	1	8	2,600	1	7	21,700	35	2,050
2	3,020	5	41	2,550	2	14	18,200	25	1,230
3	2,840	4	31	2,440	1	7	15,800	20	853
4	2,600	2	14	2,550	1	7	17,200	100	4,640
5	2,820	4	31	3,680	6	60	83,000	870	195,000
6	3,070	7	58	5,280	24	342	94,100	300	76,200
7	3,040	5	41	7,180	43	833	52,600	115	16,300
8	2,740	4	30	8,120	55	1,210	51,800	100	14,000
9	2,790	6	45	6,770	24	439	60,000	175	28,400
10	2,930	4	32	5,880	13	206	50,000	130	17,600
11	3,160	5	43	5,360	9	130	37,500	70	7,090
12	3,980	9	97	4,970	6	80	31,600	33	2,820
13	3,750	9	91	4,640	4	50	26,600	30	2,150
14	4,140	10	112	4,360	4	47	22,600	17	1,040
15	4,010	8	87	4,180	4	45	19,700	14	745
16	3,650	5	49	4,040	3	33	18,500	12	599
17	3,430	4	37	3,940	3	32	16,700	10	451
18	3,100	4	33	3,940	2	21	14,600	8	315
19	3,190	3	26	3,810	3	31	12,700	8	274
20	2,990	2	16	3,720	4	40	12,800	9	311
21	2,840	1	8	3,810	7	72	11,800	11	350
22	2,520	1	7	4,530	8	98	10,800	8	233
23	2,760	3	22	5,880	12	191	10,100	4	109
24	2,960	2	16	7,310	18	355	10,300	4	111
25	3,070	2	17	15,800	250	s 22,600	9,610	4	104
26	3,520	4	38	65,600	1,720	s 274,000	9,130	4	99
27	3,490	1	9	107,200	560	162,000	8,000	3	65
28	3,220	1	9	61,100	275	45,400	8,000	4	86
29	3,100	1	8	35,500	110	10,500	10,000	14	378
30	2,990	2	16	26,400	40	2,850	13,000	12	421
31	2,820	2	15	--	--	--	12,300	7	232
Total	97,610	--	1,087	423,140	--	521,700	790,740	--	374,256

Day	January			February			March		
1	9,560	8	207	14,400	7	272	20,100	10	543
2	8,420	9	205	22,300	54	3,250	18,800	3	152
3	7,980	6	129	35,000	52	s 4,970	17,500	3	142
4	9,080	8	196	26,700	24	1,730	18,500	10	500
5	12,600	18	s 645	19,900	20	1,070	18,600	12	603
6	24,300	93	6,100	17,600	12	570	16,700	5	225
7	20,200	50	2,730	23,600	119	s 11,200	17,400	4	188
8	16,800	17	771	46,300	272	34,000	17,500	2	94
9	14,200	15	575	40,000	60	6,480	18,700	2	101
10	12,900	6	209	27,400	20	1,480	19,700	8	426
11	11,800	6	191	22,100	18	1,070	17,200	5	232
12	11,500	5	155	18,700	22	1,110	14,800	3	120
13	11,800	4	127	19,500	22	1,160	14,100	2	76
14	11,100	4	120	24,800	37	2,480	16,300	3	132
15	20,200	93	s 5,610	28,100	46	3,490	20,400	5	275
16	18,300	87	4,300	24,700	14	934	23,200	6	376
17	17,900	32	1,550	20,900	3	169	21,300	3	173
18	17,200	12	557	24,100	28	1,820	18,600	1	50
19	15,100	9	367	21,400	23	1,330	16,400	2	89
20	15,200	7	287	22,100	16	955	21,700	51	s 3,190
21	16,400	19	841	27,900	48	3,620	29,300	44	3,480
22	17,400	18	846	41,100	110	12,200	28,200	13	990
23	16,500	11	490	47,200	138	17,600	24,400	6	395
24	20,900	62	s 4,070	35,200	57	5,420	21,300	10	575
25	42,400	288	33,000	26,600	14	1,010	20,500	8	443
26	42,400	168	19,200	22,500	6	364	23,200	8	501
27	30,200	60	4,890	21,400	8	462	21,600	11	642
28	23,700	28	1,790	20,700	9	503	18,900	8	408
29	20,600	17	946	--	--	--	18,200	4	197
30	18,400	11	546	--	--	--	31,300	9	s 978
31	16,200	6	262	--	--	--	89,200	308	s 80,100
Total	551,240	--	91,912	742,200	--	120,719	693,600	--	96,396

s Computed by subdividing day.

Table 16.--DELAWARE RIVER AT TRENTON, N. J. (MORRISVILLE, PA.)--Continued

Suspended sediment, water year 1950 to September 1951--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1	120,700	325	106,000	12,600	7	238	10,800	5	146
2	70,500	110	20,900	12,000	5	162	9,610	2	52
3	51,600	26	3,620	11,000	8	238	8,620	5	116
4	44,600	13	1,560	10,300	8	222	8,320	4	90
5	37,800	16	1,630	9,770	6	158	9,030	36	878
6	31,900	12	1,030	9,240	6	150	9,400	28	711
7	27,300	13	958	8,320	5	112	8,420	3	68
8	23,900	9	581	7,780	4	84	7,310	1	20
9	20,900	13	734	8,170	6	132	6,640	2	36
10	19,700	16	851	7,780	8	168	6,290	3	51
11	19,800	13	695	7,730	7	146	6,040	2	33
12	20,500	16	886	8,270	12	268	5,840	3	47
13	27,800	100	7,510	8,570	6	139	5,960	3	48
14	39,900	100	10,800	7,640	2	41	7,310	10	197
15	34,800	30	2,820	7,180	2	39	9,240	18	449
16	28,200	6	457	7,360	2	40	10,200	18	496
17	25,200	11	748	7,040	2	38	9,290	5	125
18	22,500	8	486	6,680	4	72	7,730	2	42
19	20,200	5	273	6,510	4	70	6,640	2	36
20	18,500	7	350	6,250	7	118	6,460	2	35
21	16,700	8	361	5,630	7	106	6,170	1	17
22	15,300	6	248	5,400	4	58	5,630	1	15
23	14,800	9	360	5,960	4	64	9,500	130	s 3,650
24	16,900	12	548	7,830	6	127	10,400	130	3,650
25	17,900	15	725	8,870	11	264	8,320	35	786
26	16,200	10	437	8,370	8	181	7,080	20	382
27	15,000	8	324	7,220	5	97	7,360	22	437
28	14,400	9	350	6,210	4	67	6,680	28	505
29	13,400	5	181	7,260	14	274	7,080	33	631
30	13,200	4	143	11,600	24	752	7,500	26	526
31	--	--	--	12,500	19	641	--	--	--
Total	860,100	--	166,566	257,040	--	5,266	234,870	--	14,275

Day	July			August			September		
1	8,820	14	333	12,000	29	940	3,940	2	21
2	8,980	33	800	9,990	24	647	3,810	7	72
3	9,400	34	863	8,420	30	682	4,080	7	77
4	8,570	34	787	7,180	28	543	3,850	6	62
5	8,930	43	1,040	6,640	28	502	3,680	6	60
6	8,980	34	824	5,920	27	431	3,810	5	52
7	8,170	20	441	5,360	27	391	4,570	3	37
8	7,080	12	230	5,090	8	110	5,010	6	81
9	6,380	24	413	5,240	16	226	4,420	4	48
10	5,750	6	93	5,120	6	83	3,940	3	32
11	5,320	11	158	6,290	6	102	3,780	5	51
12	5,840	4	63	6,860	16	296	3,620	7	68
13	6,130	17	281	6,000	41	664	4,010	10	108
14	5,960	22	354	6,730	25	454	3,880	9	94
15	6,000	19	308	6,210	30	503	4,880	10	132
16	5,630	7	106	8,300	57	s 1,430	6,550	15	265
17	5,120	1	14	10,800	124	3,620	5,400	16	233
18	5,160	2	28	9,660	61	1,590	5,800	15	235
19	5,400	5	73	10,100	40	1,090	5,550	21	315
20	6,730	27	491	8,720	22	518	4,820	18	234
21	6,640	27	484	7,180	10	194	4,390	7	83
22	8,120	54	1,180	6,680	6	108	3,910	3	32
23	8,320	31	696	6,420	2	35	3,460	3	28
24	7,540	22	448	5,750	6	93	3,280	3	27
25	6,680	12	217	5,160	7	97	3,160	3	26
26	6,210	14	235	4,710	15	191	3,100	3	25
27	5,200	15	211	4,460	4	48	3,310	7	63
28	9,020	33	s 1,890	4,390	1	12	3,590	4	39
29	25,800	219	15,300	4,040	2	22	3,940	3	32
30	15,000	127	5,140	4,390	3	36	3,750	4	41
31	14,200	67	2,570	4,320	4	47	--	--	--
Total	251,080	--	36,071	208,130	--	15,705	125,290	--	2,673

s Computed by subdividing day.

Table 16. --DELAWARE RIVER AT TRENTON, N. J. (MORRISVILLE, PA.)--Continued

Suspended sediment, water year October 1951 to September 1952

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1	3,040	2	16	8,820	142	3,380	11,200	8	242
2	2,990	2	16	12,700	79	2,710	11,100	10	300
3	2,900	8	63	21,600	106	6,180	10,800	9	262
4	3,370	7	64	35,600	160	15,400	10,800	7	204
5	3,430	5	46	38,300	155	16,000	12,100	10	327
6	3,460	5	47	27,100	105	7,680	25,200	35	2,380
7	3,620	13	127	36,400	483	53,500	32,200	20	1,740
8	4,680	11	139	62,300	150	25,200	26,000	10	702
9	5,320	15	215	66,100	115	20,500	21,800	12	707
10	6,770	15	274	46,300	51	6,370	19,500	11	578
11	7,080	26	497	32,900	50	4,440	20,800	12	675
12	7,000	10	189	25,800	20	1,390	19,200	6	310
13	7,260	7	137	21,600	10	583	17,000	8	367
14	7,310	8	158	19,100	7	362	15,500	8	335
15	7,830	8	169	19,100	10	516	14,700	10	397
16	6,550	7	124	19,500	29	1,530	13,800	9	335
17	6,170	7	117	21,400	10	578	12,000	8	259
18	5,590	6	90	20,100	10	543	16,000	9	389
19	5,160	4	56	18,000	8	389	20,000	10	540
20	5,160	3	42	16,200	9	394	28,000	8	605
21	4,970	3	40	14,800	5	200	40,000	9	97
22	4,530	3	37	13,700	6	222	32,100	10	867
23	4,080	3	33	12,400	4	134	32,200	10	869
24	4,180	11	124	12,000	8	259	27,600	9	670
25	5,200	12	168	13,100	2	71	23,100	10	624
26	6,640	14	251	15,600	5	211	21,200	10	572
27	7,400	14	280	15,800	10	427	18,200	9	443
28	8,120	7	153	14,100	15	572	15,800	9	383
29	7,690	6	124	12,800	11	381	14,400	10	389
30	7,220	3	59	12,100	10	327	14,100	8	305
31	6,640	3	54	--	--	--	14,400	11	427
Total	171,360	--	3,909	705,320	--	170,449	610,800	--	17,300
	January			February			March		
1	15,200	6	246	23,100	7	437	9,290	2	50
2	20,900	16	903	21,300	47	2,700	9,080	2	49
3	29,400	80	6,350	21,900	63	3,730	8,170	1	22
4	30,900	160	13,300	31,400	47	3,980	7,450	2	40
5	25,900	30	2,100	38,300	67	6,930	9,450	2	51
6	22,900	5	3,090	41,900	40	4,530	10,400	2	56
7	20,000	14	756	35,500	9	863	9,660	2	52
8	17,400	10	470	28,800	13	1,010	8,980	2	49
9	15,600	12	505	24,600	9	598	8,870	1	24
10	14,900	9	362	21,800	11	647	8,220	1	22
11	14,500	8	313	19,600	11	582	19,400	128	s9,850
12	13,900	11	413	18,200	5	246	59,900	504	81,500
13	12,500	9	304	17,000	2	92	67,800	230	42,100
14	11,700	13	411	14,500	3	117	44,700	104	12,600
15	12,600	18	612	13,100	3	106	31,600	50	4,270
16	14,500	14	548	12,100	2	65	24,500	22	1,460
17	17,300	23	1,070	12,500	2	68	20,500	13	718
18	19,700	41	2,180	12,600	2	68	18,200	8	394
19	20,500	26	1,440	11,800	2	64	18,900	15	767
20	23,300	22	1,380	12,000	1	32	20,200	19	1,040
21	21,500	16	929	11,400	1	31	18,900	8	408
22	20,500	10	554	11,500	2	62	19,800	15	802
23	23,900	23	1,480	11,000	1	30	32,100	46	3,990
24	24,200	8	523	9,940	2	54	36,500	59	5,820
25	22,700	2	123	9,500	3	77	39,600	58	6,200
26	24,300	3	197	9,080	2	49	34,500	27	2,520
27	32,700	41	3,620	9,400	2	51	31,000	21	1,760
28	58,400	51	8,040	9,190	1	25	30,500	22	1,810
29	52,600	45	6,390	9,080	1	25	28,400	25	1,920
30	36,200	10	977	--	--	--	24,400	12	791
31	27,500	2	149	--	--	--	21,400	7	405
Total	718,100	--	59,735	522,090	--	27,269	732,370	--	181,540

s Computed by subdividing day.

Table 16.--DELAWARE RIVER AT TRENTON, N. J. (MORRISVILLE, PA.)--Continued

Suspended sediment, water year October 1951 to September 1952--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1	19,900	2	107	31,600	22	1,880	25,500	20	1,380
2	21,800	6	353	26,000	14	983	33,800	63	5,750
3	33,900	30	2,750	22,500	5	304	34,300	46	4,260
4	37,400	78	7,880	19,800	3	160	27,600	26	1,940
5	39,500	722	s 75,600	17,800	20	961	23,800	21	1,350
6	68,700	295	54,700	15,900	44	1,890	22,100	23	1,370
7	73,600	195	38,700	15,500	7	293	20,100	18	977
8	51,000	90	12,400	14,200	3	115	17,300	27	1,260
9	38,200	40	4,130	13,300	2	72	15,000	8	324
10	31,200	24	2,020	12,700	4	137	14,400	12	467
11	26,400	17	1,210	12,200	2	66	13,600	12	441
12	22,800	9	554	13,600	4	147	12,300	8	266
13	20,300	8	438	20,600	32	1,780	11,200	7	212
14	24,900	14	941	26,900	33	2,400	10,200	4	110
15	45,900	134	16,600	24,400	19	1,250	9,450	6	153
16	66,500	183	32,900	21,400	15	867	8,420	4	91
17	55,700	100	15,000	19,500	11	579	7,780	3	63
18	39,600	41	4,380	17,900	12	580	8,270	4	89
19	31,400	20	1,700	17,000	12	551	7,930	4	86
20	26,200	13	920	16,500	26	1,160	7,360	2	40
21	22,800	12	739	18,600	12	603	6,860	2	37
22	20,100	11	597	18,900	13	663	6,340	3	51
23	18,400	10	497	17,600	13	618	6,340	6	103
24	17,100	7	323	15,800	10	427	6,550	8	141
25	16,200	10	437	21,400	46	2,660	7,000	7	132
26	23,200	28	1,750	45,200	265	32,300	6,640	4	72
27	31,000	50	4,180	51,000	118	16,200	6,170	3	50
28	45,100	104	12,700	36,100	40	3,900	5,400	3	44
29	44,100	79	9,410	28,000	28	2,120	4,900	8	106
30	39,000	50	5,260	24,200	39	2,550	4,820	7	91
31	--	--	--	21,500	19	1,100	--	--	--
Total	1,051,900	--	309,176	677,600	--	79,316	391,430	--	21,456

Day	July			August			September		
1	4,380	4	47	4,960	1	13	7,160	20	387
2	4,300	4	46	4,880	2	26	27,500	390	33,600
3	4,270	8	92	5,170	2	28	32,000	142	14,200
4	3,810	2	21	4,880	8	105	27,100	61	5,180
5	3,720	2	20	4,050	1	11	20,200	38	2,070
6	3,560	3	29	4,020	1	11	15,800	58	2,470
7	3,370	2	18	5,920	3	48	13,000	18	632
8	3,280	2	18	6,230	4	67	10,900	10	294
9	5,120	13	s 208	5,420	2	29	9,410	5	127
10	28,100	214	s 24,300	5,420	3	44	8,460	4	91
11	81,300	448	98,300	7,760	7	147	7,910	6	128
12	44,600	174	21,000	7,860	20	424	7,240	2	39
13	25,800	60	4,180	7,570	18	368	7,050	2	38
14	18,800	22	1,120	7,050	12	228	6,870	5	93
15	14,700	14	556	6,140	5	83	6,100	1	16
16	12,400	8	268	5,840	2	32	5,970	2	32
17	10,900	6	177	8,700	31	728	7,000	3	57
18	9,730	3	79	12,400	71	2,380	6,500	3	53
19	8,770	2	47	9,030	39	951	7,760	22	461
20	8,010	3	65	8,160	12	264	10,100	162	4,420
21	8,160	9	198	7,380	7	139	8,560	16	370
22	7,280	29	570	8,930	167	4,030	6,870	8	148
23	8,980	18	436	7,570	29	593	6,230	6	101
24	8,770	13	308	6,960	7	132	6,320	5	85
25	7,570	7	143	5,880	1	16	6,010	5	81
26	6,360	5	86	4,960	1	13	5,130	7	97
27	5,540	2	30	4,450	2	24	4,840	15	196
28	5,370	2	29	4,380	2	24	4,680	6	76
29	4,920	2	27	4,490	4	48	4,420	4	48
30	5,080	3	41	4,570	4	49	4,020	5	54
31	5,420	3	44	4,490	3	36	--	--	--
Total	372,370	--	152,503	195,520	--	11,091	301,110	--	65,644

s Computed by subdividing day.

Table 17.--SCHUYLKILL RIVER AT MANAYUNK, PHILADELPHIA, PA.

Suspended sediment, water year October 1949 to September 1950

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1	894	32	77	949	27	69	725	10	20
2	833	13	29	1,050	17	48	724	10	20
3	691	13	24	838	16	37	656	11	19
4	646	14	24	680	20	37	626	11	19
5	587	8	13	761	12	25	624	10	17
6	591	14	22	745	7	14	568	3	5
7	593	11	18	716	6	12	596	4	6
8	612	8	13	655	8	14	570	5	8
9	619	10	17	638	10	17	590	4	6
10	646	12	21	614	8	13	555	6	9
11	622	4	7	550	10	15	556	1	2
12	608	7	12	587	14	22	562	6	9
13	562	9	14	615	9	15	1,700	1	5
14	562	6	9	690	14	26	4,060	170	1,860
15	571	7	11	844	16	36	2,920	115	907
16	556	10	15	1,160	23	72	2,160	53	309
17	542	14	20	868	18	42	1,510	38	155
18	533	9	13	756	12	24	1,300	25	88
19	502	7	9	697	7	13	1,360	16	59
20	500	7	9	696	8	15	1,540	16	66
21	479	10	13	688	8	15	1,490	15	60
22	499	8	11	474	10	13	1,310	15	53
23	479	12	16	630	8	14	1,270	21	72
24	481	9	12	677	4	7	1,240	20	67
25	480	13	17	682	11	20	1,560	15	63
26	747	18	36	689	17	32	1,450	60	235
27	708	13	25	615	6	10	7,420	1,220	s 30,600
28	926	7	17	620	6	10	8,420	675	15,300
29	819	20	44	615	8	13	5,790	330	5,160
30	650	14	25	634	10	17	4,320	125	1,460
31	859	22	51	--	--	--	3,380	75	684
Total	19,397	--	644	21,453	--	717	61,552	--	57,340
	January			February			March		
1	2,780	30	225	4,250	97	1,110	2,150	17	99
2	2,440	18	119	5,030	100	1,360	2,170	24	141
3	2,240	16	97	7,170	285	5,520	1,780	17	82
4	2,320	20	125	5,480	140	2,070	1,540	22	92
5	2,270	17	104	4,670	87	1,100	1,680	20	91
6	1,970	18	96	3,920	43	455	1,790	14	68
7	1,950	22	116	3,920	36	381	1,670	10	45
8	2,720	11	81	3,490	29	273	1,700	18	83
9	2,420	17	111	4,440	106	s 1,970	4,410	198	2,360
10	2,230	22	133	7,800	363	7,640	4,000	156	1,680
11	4,460	168	2,020	6,320	188	3,210	2,800	60	454
12	4,680	168	2,120	5,360	105	1,520	2,780	34	255
13	3,830	62	641	4,730	63	805	3,940	60	638
14	3,710	54	541	11,500	852	s 28,500	5,050	114	1,550
15	3,380	31	283	17,400	1,900	89,300	3,630	45	441
16	2,810	32	243	13,500	1,150	41,900	3,040	26	213
17	2,420	26	170	10,300	680	18,900	2,770	23	172
18	2,160	19	111	7,840	370	7,830	2,650	35	251
19	2,100	17	96	6,420	240	4,160	2,480	43	288
20	1,970	6	32	5,350	175	2,530	2,200	34	202
21	1,640	12	53	4,140	82	917	4,490	200	s 4,170
22	1,570	8	34	3,720	59	593	8,130	460	10,100
23	1,540	3	12	3,850	54	561	21,800	2,750	s 186,600
24	1,500	3	12	3,680	45	447	17,400	1,480	69,500
25	1,460	6	24	3,330	38	342	11,100	660	19,800
26	1,530	7	29	2,980	30	241	8,670	370	8,660
27	1,500	7	28	2,450	30	198	8,970	300	7,270
28	1,560	10	42	2,080	15	84	9,670	408	10,700
29	1,540	5	21	--	--	--	9,980	366	9,860
30	1,760	8	38	--	--	--	9,000	298	7,240
31	2,550	25	172	--	--	--	7,080	225	4,300
Total	73,010	--	7,930	165,120	--	223,900	170,520	--	347,400

s Computed by subdividing day.

Table 17.--SCHUYLKILL RIVER AT MANAYUNK, PHILADELPHIA, PA.--Continued

Suspended sediment, water year October 1949 to September 1950--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1	6,020	172	2,800	2,380	22	141	5,080	76	1,040
2	5,380	128	1,860	2,970	22	176	5,780	169	2,480
3	4,860	100	1,310	3,470			4,650	80	1,000
4	4,810	85	1,100	3,290			4,560	72	886
5	4,520	80	976	2,900	30	246	5,120	81	1,120
6	3,920	65	688	2,510			3,740	33	333
7	3,500	48	454	2,480			3,170	22	188
8	3,180	39	335	2,190			2,800	20	151
9	3,020	30	245	1,930	16	92	2,510	16	11
10	2,850	19	146	1,870			2,260	18	11
11	2,700	18	131	1,830			2,250		
12	2,680	18	130	1,740			2,180		
13	2,520	15	102	1,600	13	59	1,870	22	119
14	2,370	29	185	1,540			1,730		
15	2,210	40	239	1,670			1,950		
16	2,110	37	211	1,940	18	94	2,480		
17	2,040	19	105	2,190			2,260	18	103
18	1,940	15	79	2,260	20	122	1,840		
19	1,840	16	79	4,180	96	1,080	1,630		
20	1,860	16	80	4,890	114	1,510	1,630		
21	2,060	17	94	3,700	78	779	1,810	16	72
22	2,140	15	87	3,040	38	312	1,600		
23	1,920	12	62	2,650	26	186	1,440		
24	1,840	13	65	4,430	100	1,200	1,290		
25	2,020	17	93	4,980	102	1,370	1,340		
26	2,310	18	112	3,700	62	619	1,200	15	53
27	2,240	18	109	3,410	41	377	1,120		
28	2,410	24	156	2,900	31	243	995	14	39
29	2,380	22	142	3,580	57	551	981		
30	2,160	22	128	6,100	157	2,590	967	12	31
31	--	--	--	4,480	68	822	--	--	--
Total	85,820	--	12,300	92,800	--	13,950	72,233	--	8,760

Day	July			August			September		
1	965	12	31	927	12	30	1,040	18	50
2	976	14	36	889			747	8	16
3	926			7,790	121	725	804	18	39
4	1,030	e 20	56	1,980			949	24	62
5	1,070	3 19	55	1,080	22	64	854	19	44
6	833	10	22	994	18	48	690	13	24
7	2,280	31	19	850	13	30	625	14	24
8	1,690	13	59	829	14	31	587	15	24
9	1,440	12	47	813	16	35	578	11	17
10	2,200	47	279	786	8	17	942	41	104
11	2,300	38	236	864	11	26	5,150	326	s 5,180
12	4,120	115	1,280	806	9	20	3,960	282	3,020
13	3,020	45	367	784	8	17	2,230	62	373
14	2,620			735	7	14	1,840	34	169
15	2,700	24	170	690	10	19	2,400	138	894
16	2,550			696	10	19	2,020	47	255
17	2,110			648	10	17	1,400	26	98
18	1,930	14	68	621	11	18	1,150	15	46
19	1,610			677	13	24	1,000	15	40
20	1,490			711	15	29	936	10	25
21	1,530			997	27	73	912	8	20
22	1,360			1,200	21	68	930	5	12
23	1,200	10	35	831	20	45	959	4	10
24	1,120			758	8	16	897	10	24
25	1,130			736	8	16	827	5	11
26	1,250	11	37	716	10	19	777	6	13
27	1,420			691	8	15	729	6	12
28	1,140			660	10	18	720	9	17
29	1,050			686	15	28	699	11	21
30	999	12	32	706	18	34	717	14	27
31	928			1,070	22	63	--	--	--
Total	50,987	--	3,690	33,221	--	3,030	38,069	--	10,670

Total discharge for year (second-foot days) 884,182

Total load for year (tons) 690,331

e Estimated.

s Computed by subdividing day.

Table 17. --SCHUYLKILL RIVER AT MANAYUNK, PHILADELPHIA, PA. --Continued

Suspended sediment, water year October 1950 to September 1951

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1	668	11	20	837	15	34	4,940	65	867
2	670	10	18	822	14	31	4,220	40	456
3	654	13	23	791	18	38	3,650	25	247
4	640	18	31	1,010	18	49	9,270	982	s 56,400
5	611	16	26	2,290	52	322	33,800	3,540	s 320,000
6	598	14	23	3,710	38	381	15,500	1,280	53,600
7	573	12	19	2,730	20	147	9,680	400	e 10,450
8	585	9	14	2,180	13	76	18,760	3,440	s 191,000
9	638	15	26	1,850	17	85	13,900	910	34,150
10	928	20	50	1,700	7	32	9,670	218	5,690
11	2,120	24	137	1,470	9	36	8,110	132	e 2,890
12	1,910	23	119	1,320	13	46	7,440	124	2,490
13	1,480	20	80	1,230	18	60	6,070	90	e 1,480
14	1,430	15	58	1,170	18	57	5,040	48	653
15	1,220	13	43	1,180	21	67	4,330	24	e 281
16	1,050	11	31	1,220	19	63	4,380	50	591
17	991	14	38	1,100	13	39	4,260	34	391
18	923	13	32	1,180	13	41	3,520	20	190
19	863	10	23	1,020	10	28	3,110	19	160
20	844	10	23	972	14	37	2,630	16	e 114
21	800	12	26	995	28	75	2,580	8	56
22	794	14	30	1,580	28	119	2,470	8	53
23	1,720	24	112	1,830	27	133	2,340	10	63
24	2,280	27	166	1,230	16	53	2,340	9	e 57
25	1,500	17	69	29,830	4,010	s 483,000	2,320	9	e 56
26	1,120	20	60	59,840	3,180	s 537,000	2,140	10	e 58
27	986	19	50	23,270	1,120	70,400	1,490	9	e 36
28	904	14	34	10,290	560	15,600	1,390	4	15
29	860	15	35	7,500	230	4,660	1,680	4	e 18
30	872	17	40	5,860	98	1,550	2,480	8	53
31	868	17	40	--	--	--	2,620	6	42
Total	32,100	--	1,500	172,007	--	1,114,000	193,320	--	682,600
	January			February			March		
1	2,240	--	--	4,300	49	569	4,110	17	189
2	1,880	--	--	11,500	792	s 25,800	4,170	28	315
3	1,810	--	--	7,560	275	5,610	4,030	25	272
4	2,050	--	--	5,150	76	1,060	5,280	15	214
5	3,430	--	--	4,710	47	598	6,450	48	836
6	3,950	--	--	4,220	40	456	5,240	40	566
7	3,460	--	--	10,400	107	e 30,000	4,820	42	546
8	3,640	--	--	24,900	1,490	e 100,000	4,680	40	505
9	2,980	--	--	8,440	350	7,980	4,350	14	164
10	2,490	--	--	6,030	373	6,070	3,860	16	167
11	2,390	--	--	4,900	140	1,850	3,480	11	103
12	2,310	--	--	4,510	66	804	3,300	9	80
13	2,120	--	--	4,950	49	655	3,180	13	112
14	2,120	--	--	6,460	104	1,810	3,700	22	220
15	13,800	--	--	5,370	76	1,100	4,730	14	179
16	9,660	--	--	4,260	91	1,050	4,120	8	89
17	5,970	--	--	4,310	133	1,550	3,530	56	534
18	4,660	50	629	7,420	230	4,610	3,180	115	987
19	4,040	30	327	5,850	148	2,340	3,120	137	1,150
20	3,720	19	191	6,190	138	2,310	8,240	299	s 4,830
21	3,510	19	180	10,200	661	s 21,100	8,050	213	4,630
22	3,470	15	140	13,700	875	32,400	6,440	280	4,870
23	2,970	18	144	8,880	480	11,500	5,580	72	1,080
24	8,180	468	s17,400	6,940	155	2,910	4,920	37	491
25	12,090	790	s27,500	5,860	104	1,650	4,510	78	950
26	8,000	275	5,940	5,240	58	821	3,950	93	992
27	6,140	105	1,740	4,950	72	962	3,510	98	929
28	5,170	62	865	4,510	37	451	3,260	52	458
29	4,900	64	847	--	--	--	3,360	145	1,320
30	4,820	42	546	--	--	--	6,600	442	s 7,840
31	3,900	44	463	--	--	--	10,900	481	s 14,800
Total	141,870	--	a98,260	201,710	--	268,000	148,650	--	50,420

e Estimated.
s Computed by subdividing day.
a Includes estimated discharge for missing days.

Table 17. --SCHUYLKILL RIVER AT MANAYUNK, PHILADELPHIA, PA. --Continued

Suspended sediment, water year October 1950 to September 1951--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1	6,440	400	6,960	3,660	27	267	1,280	9	31
2	5,560	51	766	2,960	3	24	1,130	11	33
3	6,970	174	s 3,420	2,620	5	35	1,150	17	53
4	5,900	80	1,270	2,370	8	51	2,170	26	152
5	4,660	40	503	2,260	15	92	2,320	32	200
6	4,100	12	133	2,150	19	110	1,650	18	80
7	3,750	31	314	2,020	10	55	1,360	14	51
8	3,460	15	140	1,920	7	36	1,150	8	25
9	3,270	10	88	1,760	22	104	1,090	15	44
10	3,110	25	210	1,570	22	93	1,180	12	38
11	3,470	36	337	1,880	32	163	1,500	20	81
12	3,510	25	237	2,440	20	132	1,690	25	114
13	10,100	600	s 18,000	2,220	3	18	1,420	9	35
14	8,540	180	4,150	1,750	6	28	2,510	2	14
15	6,700	85	1,540	1,570	15	64	2,750	8	59
16	5,470	35	517	1,450	20	78	2,010	18	98
17	4,970	27	362	1,390	20	75	1,600	19	82
18	4,390	31	367	1,310	11	39	1,390	8	30
19	3,910	35	369	1,320	9	32	1,310	7	25
20	3,690	29	289	1,350	28	102	1,140	2	6.2
21	3,350	11	99	1,310	16	57	1,140	9	28
22	3,000	25	202	1,340	30	109	1,020	15	41
23	3,400	20	184	1,480	29	116	1,220	6	20
24	4,310	31	361	2,240	21	127	1,740	10	47
25	3,510	30	284	2,140	18	104	2,010	19	103
26	3,180	17	146	1,520	20	82	2,000	31	167
27	2,980	9	72	1,270	28	96	1,720	21	97
28	2,750	9	67	1,230	8	27	1,390	16	60
29	2,650	9	64	1,390	15	56	1,510	30	122
30	3,280	21	186	2,050	19	105	3,340	42	379
31	--	--	--	1,560	10	42	--	--	--
Total	134,380	--	41,640	57,500	--	2,520	48,890	--	2,320

Day	July			August			September		
1	2,890	19	148	1,940	10	52	705	3	5.7
2	2,190	29	171	1,620	8	35	661	1	1.8
3	1,860	30	151	1,410	25	95	1,600	8	35
4	1,530	28	116	1,250	32	108	1,780	18	86
5	1,870	30	151	1,150	20	62	1,100	45	134
6	2,490	31	208	1,070	3	8.7	903	5	12
7	1,730	35	164	999	2	5.4	922	8	20
8	1,350	20	73	950	12	31	1,120	9	27
9	1,170	12	38	983	35	93	1,120	3	9.1
10	1,080	8	23	1,020	12	33	864	4	9.3
11	989	5	13	1,480	26	104	788	3	6.4
12	961	7	18	1,680	25	113	760	2	4.1
13	1,730	20	93	1,600	25	108	767	6	12
14	2,240	19	115	2,640	55	392	755	6	12
15	1,220	5	16	1,670	23	104	1,140	7	22
16	1,020	9	25	1,390	21	79	1,670	8	36
17	941	9	23	1,360	6	22	1,190	2	6.4
18	1,490	20	80	1,780	7	34	949	2	5.1
19	1,790	10	48	1,420	13	50	848	1	2.3
20	3,430	10	93	1,350	48	175	794	3	6.4
21	2,170	5	29	1,520	12	49	744	5	10
22	1,390	7	26	1,250	2	6.8	703	6	11
23	1,190	22	71	1,080	9	26	713	1	1.9
24	1,230	18	60	993	10	27	631	1	1.7
25	1,300	30	105	926	12	30	678	5	9.2
26	1,110	8	24	894	3	7.2	659	4	7.1
27	971	2	5.2	846	1	2.3	653	5	8.8
28	860	2	4.6	816	2	4.4	649	5	8.7
29	3,580	160	1,550	785	10	21	607	4	6.6
30	3,530	50	477	733	39	81	694	6	11
31	2,520	19	129	724	10	20	--	--	--
Total	53,822	--	4,250	39,369	--	1,980	27,167	--	529

s Computed by subdividing day.

Table 17. --SCHUYLKILL RIVER AT MANAYUNK, PHILADELPHIA, PA. --Continued

Suspended sediment, water year October 1951 to September 1952

Day	October			November			December		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1------	651	2	4	3,110	125	1,050	2,120	10	57
2------	643	5	9	5,060	192	2,620	2,060	5	28
3------	653	6	11	9,740	880	23,100	1,960	6	32
4------	619	7	12	11,400	910	28,000	1,890	7	36
5------	600	13	21	6,630	260	4,650	3,250	16	140
6------	598	10	16	4,570	50	617	14,300	1,080	41,700
7------	662	28	50	16,500	630	28,100	9,520	380	9,770
8------	1,230	40	133	19,900	1,220	65,600	6,870	100	1,860
9------	1,860	30	151	9,830	420	11,100	5,460	52	767
10------	1,170	15	47	6,480	118	2,060	4,480	43	520
11------	1,100	15	45	4,970	50	671	3,800	28	287
12------	1,100	11	33	4,100	30	332	3,420	20	185
13------	1,100	14	42	3,470	20	187	3,130	15	127
14------	905	12	29	3,170	15	128	2,750	10	74
15------	804	10	22	3,660	15	148	2,890	11	86
16------	794	18	39	3,760	18	183	3,300	18	160
17------	770	18	37	4,250	25	287	2,310	11	69
18------	727	15	29	4,170	32	360	2,190	9	53
19------	735	15	30	3,650	30	296	2,760	14	104
20------	704	12	23	3,220	20	174	3,080	11	a91
21------	668	9	16	2,830	10	76	26,000	1,280	a89,900
22------	678	10	18	2,550	5	34	16,900	830	a37,900
23------	682	11	20	2,370	5	32	9,290	220	5,520
24------	758	20	41	2,350	2	13	6,870	55	1,020
25------	1,010	19	52	2,420	2	13	5,720	40	a618
26------	1,120	20	60	3,270	20	177	6,230	42	706
27------	1,060	15	43	3,520	30	285	6,040	40	652
28------	870	16	38	2,760	10	75	4,470	28	338
29------	868	10	23	2,310	10	62	3,900	20	211
30------	1,110	12	36	2,200	20	119	3,730	15	151
31------	941	28	71	--	--	--	4,160	20	225
Total-	27,190	--	1,201	158,220	--	170,549	174,850	--	193,387

Day	January			February			March		
1------	4,850	38	498	6,240	40	674	2,280	5	31
2------	7,880	95	2,020	5,930	30	480	2,310	6	37
3------	11,100	188	5,630	5,690	28	430	2,240	4	24
4------	11,100	210	6,290	13,900	531	s25,300	2,300	8	50
5------	9,350	106	2,680	12,800	420	14,500	4,680	45	569
6------	7,920	65	1,390	8,490	130	2,980	5,200	45	632
7------	6,270	55	931	7,280	58	1,140	3,940	16	170
8------	5,160	35	488	6,260	50	845	3,410	7	64
9------	4,610	25	311	5,630	35	532	3,140	5	42
10------	4,590	29	359	5,100	38	523	3,050	5	41
11------	4,900	42	556	4,710	25	318	20,400	1,210	s112,000
12------	4,200	26	295	4,450	25	300	29,500	1,750	139,400
13------	3,600	15	146	4,000	10	108	14,700	450	17,900
14------	3,390	16	146	3,480	15	141	10,300	175	4,870
15------	3,600	15	146	3,200	25	216	7,690	85	1,760
16------	4,100	17	188	3,160	10	85	6,290	68	1,150
17------	3,800	15	154	3,960	20	214	5,490	42	623
18------	6,300	70	1,190	4,500	35	425	4,880	38	501
19------	6,490	88	1,540	3,780	10	102	6,440	92	1,600
20------	5,640	55	838	3,220	5	43	9,520	178	4,580
21------	5,480	40	592	3,010	4	33	6,370	53	912
22------	4,890	25	330	2,970	7	56	5,960	35	563
23------	8,150	100	2,200	2,760	4	30	6,820	59	1,090
24------	6,740	75	1,360	2,610	4	28	8,310	65	1,460
25------	5,160	31	432	2,620	10	71	6,940	37	693
26------	9,700	310	8,120	2,500	5	34	6,240	26	438
27------	14,200	510	19,600	2,390	5	32	5,590	20	302
28------	17,000	640	29,400	2,330	5	31	5,040	15	204
29------	13,500	325	11,800	2,280	6	37	4,560	11	135
30------	9,230	120	2,990	--	--	--	4,320	12	140
31------	7,220	70	1,360	--	--	--	3,990	8	86
Total-	220,120	--	103,980	139,250	--	49,708	211,900	--	292,067

s Computed by subdividing day.
a Computed from estimated concentration graph.

Table 17.--SCHUYLKILL RIVER AT MANAYUNK, PHILADELPHIA, PA.--Continued

Suspended sediment, water year October 1951 to September 1952--Continued

Day	April			May			June		
	Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment		Mean discharge (cfs)	Suspended sediment	
		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day		Mean concentration (ppm)	Tons per day
1	3,590	9	87	11,400	136	4,190	14,800	340	13,600
2	3,830	8	83	8,990	75	1,820	11,000	180	5,350
3	5,760	42	653	7,410	50	1,000	6,130	40	662
4	4,680	20	253	6,440	39	678	4,970	30	403
5	8,740	226	s 8,040	5,660	25	382	4,710	16	203
6	12,100	270	8,820	5,200	24	337	4,550	15	184
7	8,670	120	2,810	4,790	22	285	3,950	18	192
8	7,070	45	859	4,310	35	407	3,460	13	121
9	5,920	28	448	4,010	20	217	3,210	10	87
10	5,190	25	350	3,820	18	186	2,980	10	80
11	4,700	21	266	3,960	19	203	2,830	15	115
12	4,240	15	172	5,520	60	894	2,530	8	55
13	3,920	9	95	7,860	115	2,440	2,330	14	88
14	6,460	41	715	6,240	52	876	2,220	8	48
15	12,800	355	12,300	5,310	25	358	2,110	8	46
16	13,100	260	9,200	4,750	20	257	1,990	9	48
17	9,340	110	2,770	4,130	10	112	1,940	7	37
18	7,620	55	1,130	4,140	10	112	1,830	6	30
19	6,360	35	601	4,580	21	260	1,830	8	40
20	5,580	30	452	4,300	25	290	1,820	11	54
21	5,020	26	352	5,620	42	637	1,800	15	73
22	4,530	25	306	4,480	18	218	1,750	19	90
23	4,160	15	168	3,690	10	100	1,920	15	78
24	3,920	5	53	3,410	10	92	2,060	15	83
25	4,260	19	219	9,100	326	s 14,000	2,010	11	60
26	11,100	192	5,750	21,700	952	s 57,700	1,730	12	56
27	14,200	280	10,700	11,400	190	5,850	1,510	11	45
28	40,400	2,040	s 244,000	7,690	55	1,140	1,380	12	45
29	26,200	801	56,700	6,250	36	608	1,280	16	55
30	16,200	450	19,700	5,790	35	547	1,230	16	53
31	--	--	--	5,730	32	495	--	--	--
Total	269,660	--	388,052	197,680	--	96,691	97,860	--	22,081

Day	July			August			September		
1	1,190	12	39	1,220	8	26	6,460	540	9,420
2	1,120	4	12	1,220	9	30	18,100	1,400	68,400
3	1,080	5	15	1,800	10	49	13,400	410	14,800
4	1,110	4	12	1,640	8	35	8,340	140	3,150
5	1,100	7	21	1,270	8	27	5,440	59	867
6	1,010	10	27	1,540	20	83	4,290	32	371
7	980	7	19	2,010	22	119	3,580	21	203
8	1,330	14	50	2,340	26	164	3,280	18	159
9	4,030	120	131	2,120	34	195	2,840	13	100
10	19,600	1,480	78,300	2,320	35	219	2,470	10	67
11	9,150	320	7,910	2,520	29	197	2,250	12	73
12	4,770	48	618	2,790	30	226	2,110	11	63
13	3,400	22	202	2,120	24	137	1,940	10	52
14	2,740	17	126	2,040	16	88	1,730	10	47
15	2,280	10	62	1,720	14	65	1,670	11	50
16	2,050	18	100	1,870	22	111	1,720	18	84
17	1,900	8	41	3,050	34	280	2,340	14	88
18	1,780	9	43	3,640	56	550	1,760	12	57
19	1,650	9	40	2,590	28	196	2,870	50	387
20	1,630	14	62	2,060	20	111	3,130	60	507
21	1,720	12	56	1,810	20	98	2,090	34	192
22	2,380	13	84	1,630	13	57	1,650	25	111
23	2,320	9	56	1,750	16	76	1,610	19	83
24	1,920	8	41	1,520	12	49	1,620	14	61
25	1,510	11	45	1,310	16	57	1,470	14	56
26	1,360	8	29	1,260	12	41	1,380	11	41
27	1,320	7	25	1,110	13	39	1,270	10	34
28	1,360	6	22	1,090	10	29	1,220	8	26
29	1,400	8	30	1,090	12	35	1,190	9	29
30	1,410	9	34	1,310	22	78	1,180	10	32
31	1,250	7	24	2,020	47	256	--	--	--
Total	81,850	--	88,276	57,780	--	3,723	104,400	--	99,610

s Computed by subdividing day.

Table 18.--Particle-size analyses of suspended sediment, November 1948 to September 1952
(Methods of analysis: B, bottom withdrawal tube; D, decantation; P, pipette; S, sieve; N, in native water; W, in distilled water; C, chemically dispersed; M, mechanically dispersed)

Date of collection	Time	Discharge (cfs)	Suspended sediment												Methods of analysis
			Concentration of sample (ppm)	Concentration of suspension analyzed (ppm)	Percent finer than indicated size, in millimeters										
					0.002	0.004	0.008	0.016	0.031	0.062	0.125	0.250	0.350	0.500	1.000	
SCHUYLKILL RIVER AT PHILADELPHIA, PA.																
Nov. 8, 1948	2:50 p.m.	2,390	249				14	39	70	92	96	98		99	--	DWC
Nov. 24	12:05 p.m.	3,120	119				15	48	77	94	97	99		--	--	DWC
Dec. 30	2:00 p.m.	38,800	7,850				4	9	14	31	42	66		94	100	DWC
Dec. 30	10:00 p.m.	51,600	5,000				4	10	16	26	35	55		92	99	DWC
Dec. 31	7:00 a.m.	34,800	2,480				8	16	28	46	59	81		99	--	DWC
Dec. 31	4:30 p.m.	32,600	2,460				8	15	23	33	40	54		89	99	DWC
Jan. 12, 1949	2:15 p.m.	4,930	143				6	21	32	43	58	75		97	--	DWC
Jan. 27	12:05 p.m.	10,100	415				15	28	39	51	61	78		97	--	DWC
Feb. 17	1:25 p.m.	6,400	196				10	22	32	46	61	84		99	--	DWC
Mar. 3	12:15 p.m.	4,000	51				26	41	56	66	70	83		97	--	DWC
Apr. 21	7:20 p.m.	5,200	140				20	44	62	80	87	94		99	--	DWC
May 12	11:00 a.m.	2,400	15				30	55	75	95	97	98		--	--	DWC
May 23	11:20 a.m.	3,080	85				14	32	53	82	84	90		99	--	DWC
July 15	10:05 a.m.	1,520	43				34	58	80	93	98	99		--	--	DWC
July 29	10:20 a.m.	1,520	35				21	43	66	82	91	--		--	--	DWC
Sept. 8	10:55 a.m.	1,230	55				26	53	70	86	92	97		--	--	DWC
Nov. 25, 1950	9:15 p.m.	29,600	5,455				8	16	24	36	43	59		89	99	DWC
Dec. 5	2:40 p.m.	33,500	1,870				10	19	29	39	48	62		83	97	DWC
Aug. 11, 1952	3:00 p.m.	3,020	24				49	85	93	96	98	99		--	--	BWC
Sept. 2	12:30 p.m.	109,100	1,400				27	36	48	64	80	87		91	94	BWC
DELAWARE RIVER AT TRENTON, N.J. (MORRISVILLE, PA.)																
Sept. 2, 1952	1:00 p.m.	30,800	450			21	39	69	98							BWC

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MAP OF DELAWARE RIVER BASIN, SHOWING SAMPLING LOCATIONS FOR CHEMICAL QUALITY AND SEDIMENT

315391 O - 54 (In pocket)