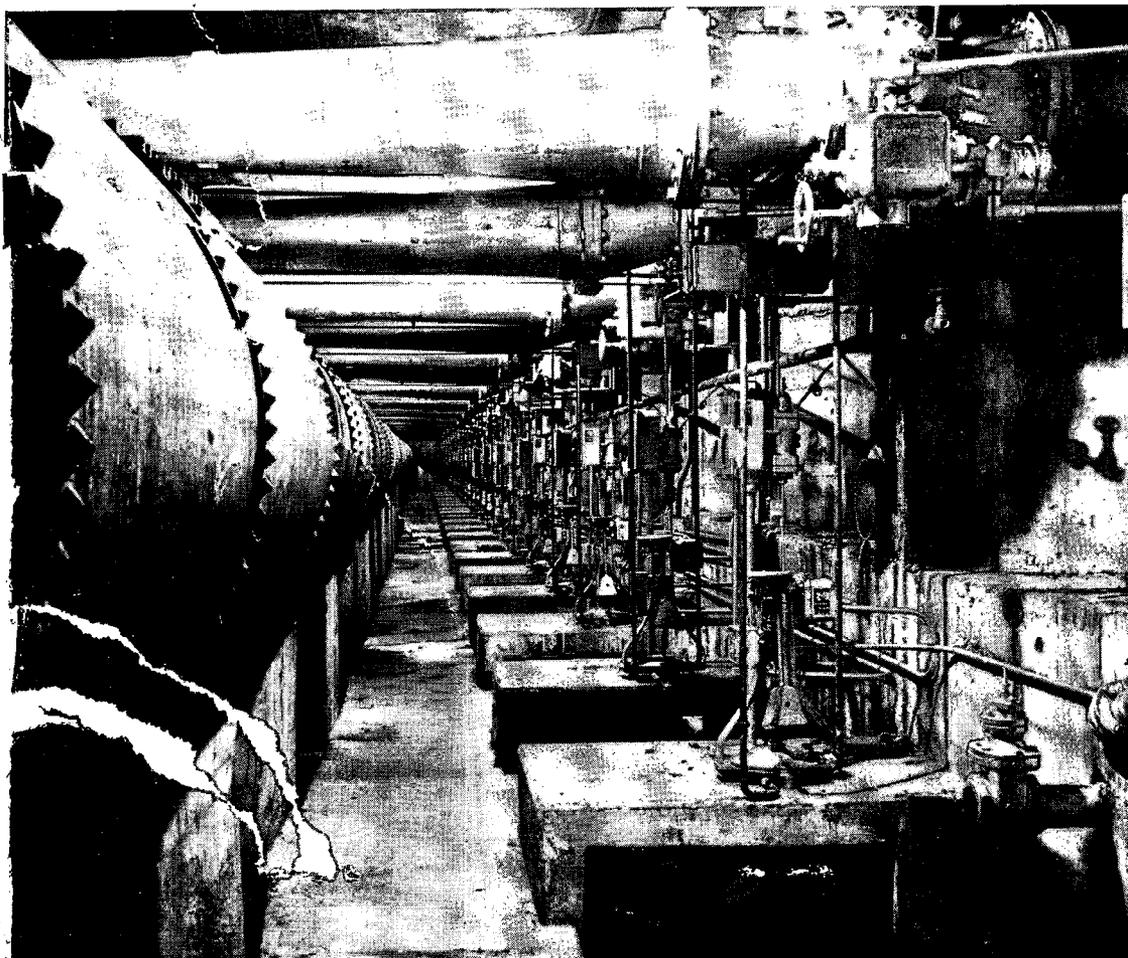


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CITY DOCUMENT



ANNUAL REPORT
of the
WATER SUPPLY BOARD
of the
CITY OF PROVIDENCE

For the Year Ended September 30, 1961

CITY DOCUMENT

ANNUAL REPORT

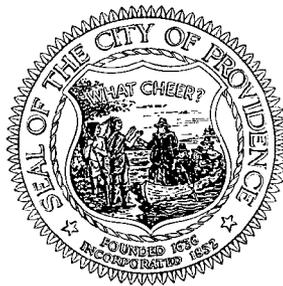
OF THE

WATER SUPPLY BOARD

OF THE

CITY OF PROVIDENCE
RHODE ISLAND

For the Year Ended September 30, 1961



REPORT

ADMINISTRATIVE OFFICE
WATER SUPPLY BOARD
CITY OF PROVIDENCE
OCTOBER 1, 1961

TO THE HONORABLE WALTER H. REYNOLDS, MAYOR, AND THE
HONORABLE CITY COUNCIL:

Gentlemen:

In compliance with Chapter XX of the Charter of the City of Providence, enacted by the General Assembly of the State of Rhode Island at its January Session, A. D. 1940, and approved April 26, 1940, we have the honor to present the twenty-first annual report of the Water Supply Board for the year ended September 30, 1961.

On January 2, 1961 John J. Tierney was reappointed a member of the Board for the ensuing term ending on the first Monday in January 1965, and David R. McGovern, having been elected City Treasurer, became the Ex-Officio member.

At the re-organization meeting held on January 6, 1961, John A. Doherty was reelected Chairman and John J. Deary was reappointed Secretary.

The Board has held regular meetings throughout the year, meeting practically every week, at which careful consideration has been given to the many problems arising in connection with maintenance and operating activities, the Department's financial structure, matters relative to taxes levied on property owned in nearby communities, and other miscellaneous departmental duties which properly come before the Board. Special meetings were held throughout the year for consideration of particular problems which have arisen.

The report of the Chief Engineer with many important tables and statistical data is appended hereto, to which we invite your attention for details and particular information regarding the finances of the Department and conduct of the work during the above period.

Respectfully submitted,

WATER SUPPLY BOARD

JOHN A. DOHERTY, *Chairman*

EARL H. ASHLEY

UGO RICCIO

JOHN J. TIERNEY

DAVID R. MCGOVERN, *Ex-Officio*

John A. Doherty
Chairman

IN CITY COUNCIL

FEB 15 1962

READ:

WHEREUPON IT IS ORDERED THAT
THE SAME BE RECEIVED.

4

David R. McGovern
CLERK

REPORT OF THE CHIEF ENGINEER

Providence, R. I.

October 1, 1961

WATER SUPPLY BOARD
CITY OF PROVIDENCE

Gentlemen:

The following is the report of operations of the Providence Water Works for the fiscal year ended September 30, 1961.

The new Aqueduct Reservoir for Low Service Distribution Storage, which is being constructed by the M. A. Gammino Construction Company of Providence, progressed at a very satisfactory rate during the past year. At the close of the year, September 30, this project, on a monetary basis, was approximately at 94 per cent of completion, which is 14 per cent ahead of the project schedule as originally planned. In the past 12 months, the value of work constructed in that time represented 71 per cent of the total project cost. The work remaining to be done includes construction of the Gate House Superstructure, disinfection and testing of the reservoir proper, earthwork, grading, fencing, and construction of driveways and grassing. With the coming winter months it is expected that construction progress will slow down appreciably, but that the project should be completed and in service previous to the peak summer loads in the coming 1962 year. This undertaking is being financed under a \$2,150,000 bond issue approved by the voters in the November 1958 election and concurrent approval by the General Assembly in the 1959 session. The addition of this facility to the distribution system will increase the present distribution storage by 79 per cent to a figure approximating two days of average consumption.

On the major construction schedule, the building of Additions, Alterations, and Improvements to the Water Purification Works in Scituate, under contract with the Gilbane Building Company of Providence, continued during the year, and on September 30 the value of the completed work represented 75.6 per cent of the entire project. Progress on this job has been necessarily slowed down due to the complications involved in keeping and maintaining the Purification Works in full and uninterrupted capacity while the work of additions, alterations, and improvements was carried on. However, with only minor brief interruptions during the week-end periods, conversions of the major items of power supply, chemical handling, chemical treatment, and increased service water facilities were successfully made to the new work. It is anticipated now that the work will progress at an increased rate, and that the remodeled plant with all new and expanded features will be in full operation in the midsummer of the 1962 year. Financing of this project is being carried out under funds authorized by two bond issues approved by the voters of the City of Providence and the General Assembly of the State of Rhode Island aggregating \$1,400,000.00, and a sum of \$550,000.00 obtained by transferral from the Depreciation and Extension Fund.

The semi-annual inspection, operation, and maintenance of sectionalizing gate valves, 12-inch and larger, in the distribution system was continued during the year. The result of this maintenance program was much more satisfactory than in previous years, since it was necessary to replace only three defective valves in 16 and 24-inch sizes. This compares with 10 replacements of comparable sizes in the preceding year. With the recycling of this inspection program it is now felt that the larger valves at main control points in the distribution system are in a good dependable condition for emergency operation.

The modernization and replacement program for worn and obsolete control valves at the Water Purification Works was continued during the year with the installation of ten 24-inch electric motor operated butterfly type valves for wash water service on Filters 5, 6, 9, 11 and 13. The valves installed this

year were purchased at the end of the previous year from B.I.F. Industries under competitive bidding, and a similar contract for the remaining ten units was awarded this year on June 15, also to the B.I.F. Industries, in the amount of \$20,320.00. Installation of these remaining units to complete the total of 28 in this program is scheduled in the first quarter of the coming year. Cost data compiled on the basis of this year's work, which includes valves, piping, electrical equipment, related wiring changes and incidental labor shows a unit installed cost of \$3,818.35 per valve. The completion of this program, which has been accelerated due to the increasing operating difficulties experienced with the older valves, minimizes the possibility of serious failures in filter plant operation, and will permit undertaking the necessary replacement program for the filter influent and filter drain sluice gates, most of which have been in service since 1926.

Under authority of the Board of Contract and Supply dated March 7, 1961, The Pitometer Associates of New York City were engaged to conduct a complete Trunk Main Survey of the High and Low Service Distribution Systems as directed. The last Pitometer Survey of comparable scope was made on the system in 1944, and since that time the average daily consumption in the system has increased by 26½ per cent, with the maximum day increasing from 49.53 million gallons to 84.70 million gallons, and the peak hour rates from 69.80 M.G.D. to 131.04 M.G.D., which figure is 88 per cent higher than the 1944 peak hour. From the results of a survey of this nature, which will include 24 hour flow measurements and loss of head tests for the purpose of determining roughness coefficients of the various trunk mains, the full impact of improvements and extensions to the system since 1944 can be properly evaluated. This work began early in May and is scheduled for completion in October 1961, with the observations being made during the season of maximum demands on the system. The cost of the survey, together with bound copies of a complete report, is estimated at \$12,500.00.

Coincident with the unwatering of the 66-inch Steel Pipe section of the Scituate Aqueduct in September 1960 for the

purpose of making conduit connections to the new Aqueduct Distribution Reservoir, it was revealed that leakage approximating 3000 gallons per minute was passing through a defective 42-inch gate valve on the wye connection at Budlong Road. This connection, which is the major and only sizeable supply to the City of Warwick and the State Institutions, and one of the most critical control points in the distribution system, must be depended upon for quick and effective control in emergencies. Consequently, plans and specifications were prepared for revalving this area, and the Fanning and Doorley Construction Company, the lowest bidder, was awarded a contract for this work in the amount of \$52,187.00 in June 1961. The work as planned, which includes a 42-inch by 42-inch wet tap into the Budlong Road main, a 42-inch Butterfly Valve with steel pipe reducers, and a 42-inch saddle welded connection into the 66-inch Steel Pipe Aqueduct, is so arranged that the major portion can be done with no interruption of service in either the Aqueduct or the 42-inch Budlong Road main, and the final connection into the Scituate Aqueduct then made during a week-end shutdown of only short duration while service is maintained in Budlong Road. Deliveries of materials for this work are guaranteed for November 1961, and it is planned to complete the work previous to the severe weather of the coming winter.

On December 2, 1960, under the authority of an act in amendment of and in addition to Chapter 1443 of the Public Laws of 1929, passed at the January Session of the General Assembly of the State of Rhode Island, A. D. 1931 and numbered Chapter 1779, a tax agreement was executed with the Town of Scituate fixing the valuation of the ratable property owned by the City of Providence and located in the Town of Scituate at \$8,300,000.00, and which shall remain so fixed during the five year period from December 31, 1960 to December 31, 1964, both inclusive. This valuation represents an increase of \$1,510,000.00 over the previous agreement that expired on December 31, 1959.

On July 12, 1961 a parcel of land in the Town of Foster containing 58.24 acres, bounding on the east shore line of Barden

Reservoir and abutting on land owned by the City to the south, was acquired from John Nemczuk and Wife Anna at a cost of \$16,134.00.

The installation of new extensions to the distribution system and the replacement and relocation of existing mains required the installation of 42,758 feet of various size and kind of pipe. A major part of this footage was installed by contractors under competitive bidding. Two contracts involving 37,695 feet of main extensions and replacements were awarded during the year; one to the C. Brito Construction Company for 19,468 feet, and one to the A. E. Bragger Construction Company for 18,227 feet.

In connection with the construction of the North-South Freeway in Providence between Public Street and Hayward Park, the M. A. Gammino Construction Company installed 2,194 feet of cast iron main and appurtenances during the year. This footage consisted of 194 feet of 6-inch, 34 feet of 8-inch, and 1,966 feet of 16-inch. This company also installed 152 feet of 8-inch cast iron main alongside the Fox Point Hurricane Barrier to connect the existing mains in Globe and Crary Streets in Providence.

The Campanella and Cardi Construction Company installed 1,330 feet of 16-inch cast iron main in West River Street in Providence, completing the work involved in the construction of the West River Redevelopment Project. The Campanella and Cardi Company also installed 504 feet of 6-inch asbestos-cement pipe and 16 feet of 6-inch cast iron pipe in connection with the development of the Lippitt Hill Redevelopment Project in Providence.

Other extensions involved the installation of 113 feet of pipe by the Fanning and Doorley Construction Company, and 290 feet of main which was laid by the Department's forces.

One hundred and seventy-four main extensions were laid in various streets, with approximately 8,554 feet remaining to be laid at the end of the year.

On April 4, 1961, a contract was awarded to the M. A. Gammino Construction Company for the installation of 61 post hydrants on the distribution system. Under the terms of the contract, the contractor furnished all materials except the hydrants, which were furnished by the department. Work started on May 10, 1961 and was completed on June 16, 1961, the total payment amounting to \$21,052.67.

Capital improvements, excluding the projects under the Gilbane and Gammino contracts, totalled \$624,970.30 during the year of which \$532,295.40 was for improvements to the distribution system including \$274,539.40 for main extensions, new services \$99,146.95, hydrants \$108,828.99 and gate valves \$49,780.06. The balance of \$92,674.90 included \$16,134.00 for land and \$76,540.90 for wash water control valves. All capital improvements were financed from revenue for the 1961 year.

Applications for water service totalled 855, or 127 less than in the previous year. Of this number 91 required extensions to the distribution system. A total of 813 new services were installed, 792 general supplies and 21 fire supplies.

Under the terms of Chapter 1525 of the Ordinances and Resolutions of the City of Providence for 1946, this department was charged with the operation of the sewer rental law, which took effect October 1, 1946. During the fiscal year ended September 30, 1961, the net sewer rental collection totalled \$133,854.89.

Automotive and construction equipment owned and in use by the department totalled 28 various trucks, 19 passenger cars including 2 jeeps, 9 compressors, various pumps, and other miscellaneous equipment. The records of the department indicate that trucks were operated a total of 39,225 truck hours at a cost of 62.0 cents per hour including depreciation, compressors 4,420 hours at 58.5 cents per hour, and passenger cars were driven a total of 193,419 miles at a cost of 7.1 cents per mile.

SOURCE OF SUPPLY

SCITUATE WATERSHED—RAINFALL AND RUNOFF

The rainfall on the 92.8 square mile Scituate Watershed above Gainer Dam was measured as usual by rain gages at Rocky Hill, Hopkins Mills, North Scituate, Westcott District and Gainer Dam. For the year ended September 30, 1961 a total of 51.97 inches was recorded, which is 3.39 inches greater than the 46-year (1916-1961) average of 48.58 inches. The rainfall for the year was 107% of the long term average and 78% of the maximum of 66.28 inches, established during the year ended September 30, 1958.

There were two equally long periods of five days of successive rainfall and one period of six days, with the most productive of these periods occurring during the five days August 20 to 24, 1961 when a total of 3.24 inches was recorded; with a maximum of 1.57 inches on August 23, and a minimum of 0.02 inch on August 24. Although of shorter duration, the two-day period September 20 and 21, 1961 produced 6.70 inches; 3.05 inches on September 20, and 3.65 inches on September 21. The longest period when no rainfall was recorded occurred from January 2 to 14, 1961.

The total rainfall of 51.97 inches was the seventeenth highest yearly rainfall experienced during the 46-year period, the highest being for the year ended September 30, 1958 when a total of 66.28 inches was recorded. During the months of October and December 1960, and April, May and September, 1961, the monthly rainfall exceeded the 46-year (1916-1961) averages for these respective months; the maximum monthly rainfall occurring in September when 9.43 inches were measured, which was 5.29 inches above the 46-year average for that month. The minimum monthly rainfall occurred in June 1961 when a total of 2.25 inches was recorded, or 1.36 inches below the long term average for that month. The maximum day's rainfall for the year occurred on September 21, 1961 when a total of 3.65 inches

was recorded, with the station at Hopkins Mills measuring 4.52 inches.

The runoff for the year totalled 28.80 inches, which was 3.63 inches greater than the 46-year (1916-1961) average of 25.17 inches. During the months of October and November 1960, and February, March, April, May, June and September, 1961 the monthly runoff exceeded the 46-year averages for those respective months; the maximum monthly runoff occurring in March when 4.97 inches was recorded. During the months of December, 1960, and January, July and August, 1961 the monthly runoff was less than the 46-year averages; the minimum monthly runoff occurring in August when 0.20 inch was recorded.

Statistical rainfall and runoff data for the year ended September 30, 1961, and the years of previous watershed record may be found in Tables 1, 2, 3, and 4 of the Appendix.

SCITUATE WATERSHED

STORAGE, DRAFT, AND YIELD

On October 1, 1960 the water in Scituate Reservoir was at elevation 279.00, or 5.01 feet below the spillway level; the total storage then amounted to 31,700,000,000 gallons, or 85.7% of capacity. At the end of the year, October 1, 1961, the reservoir was at elevation 279.99, or 4.02 feet below the spillway level, with a storage of 32,769,000,000 gallons, or 88.5% of capacity. From October 1, 1960 the elevation dropped steadily to 278.00 on October 20, or 6.01 feet below the spillway level. The total storage then amounted to 30,700,000,000 gallons, or 82.9% of capacity. A gradual rise followed, with minor fluctuations, to elevation 280.61 on January 4, 1961; the storage then was 33,396,000,000 gallons. The elevation then dropped fairly rapidly to 277.52 on February 18, or 6.49 feet below the spillway level. The total storage then amounted to 30,220,000,000 gallons, or 81.7% of capacity, the smallest amount in storage during the entire year. After a rapid rise to 283.24 on March 17 the elevation fluctuated slightly and then rose to 284.07 on April 15; this was 0.06 feet

above spillway elevation of 284.01. It continued upward to the maximum for the year of 285.60 on May 29. At this point the total storage amounted to 38,785,000,000 gallons, or 104.8% of capacity. The elevation then decreased in a steady manner to 277.76 on September 20, rose rapidly to 280.09 on September 28 and then decreased to 279.99 on October 1, 1961.

On October 1, 1960 the combined storage on the watershed, including Regulating, Westconnaug, Barden, Moswansicut, Ponganset and Scituate Reservoirs amounted to 35,927,000,000 gallons, or 87.1% of combined total capacity; and at the end of the year, October 1, 1961 the combined storage was 37,094,000,000 gallons, or 89.9% of capacity. The maximum combined storage was on May 27, when 43,167,000,000 gallons, which is 104.6% of capacity, were impounded. The minimum combined storage was on February 18, when 34,616,000,000 gallons, or 83.9% of capacity, were impounded.

Available storage statistics in detail will be found in Table 5 of the Appendix.

The total draft from the Scituate Watershed for the year was 45,269,840,000 gallons, or an average of 124,030,000 gallons per day. The draft for water supply purposes was 18,300,080,000 gallons, or an average of 50,140,000 gallons per day. The discharge into the north branch of the Pawtuxet River totalled 26,969,760,000 gallons, equal to 73,890,000 gallons per day. The discharge to the river was released at rates and during the hours which were most advantageous to the mills on the Pawtuxet River below Gainer Dam.

The yield from the Scituate Watershed for the year was 46,436,840,000 gallons, or an average of 127,220,000 gallons per day, which was 3,190,000 gallons per day more than the average daily draft, and 16,080,000 gallons per day more than the average daily yield for the 46-year period 1916 through 1961.

Draft and yield statistics will be found in Table 6 of the Appendix.

SCITUATE WATERSHED
FORESTRY AND MAINTENANCE OPERATIONS

1961

THE MAINTENANCE PROGRAM

The constant struggle to control undesirable hardwood vegetation was in the forefront of maintenance operations. Nine miles of overgrown roadside fenceline were cleared of invading brush. Considerable fenceline and fire-control clearing was completed where City property borders the village of North Scituate. Some resprouting was eliminated by stump treatment with Ammate X. Future programs include the treatment of re-invading brush species with herbicidal spray before mechanical measures are again necessary.

Spraying operations for brush control were concentrated on primary and secondary access roads and firelanes. It is important to keep firelanes and woods roads in an accessible condition. A well-maintained road system improves the over-all efficiency of forest management on the watershed. The opportunity for quick access by fire fighting equipment and men could mean the difference between an insignificant burn or a major forest fire.

The results of herbicidal spraying done in the summer of 1960 were somewhat evident this year. Many variable factors have an effect on the percentage of kill. A 70 to 80 percent effective kill was noted in most areas sprayed last year. Various hardwood species differ in their susceptibility to Ammate. Red maple is particularly resistant to herbicidal treatment, and several applications will be required to completely control this abundant species.

After a second year of mowing slope areas with the Worthington Tractor, the turf cover and appearance of Gainer Dam and other grassed surfaces has notably improved. Continuous efforts are being made to better the fertilization and liming programs of turf areas.

Other necessary maintenance requirements were carried out as planned. Specific attention was given to sections of the aque-

duct, distribution reservoirs, Rockland Cemetery, and various areas and facilities at the Source of Supply.

THE FORESTRY PROGRAM *TIMBER PRODUCTION*

Timber sales from thinnings and improvement cuttings totalled 65 cords of fuelwood, 1010.85 tons of pulpwood and 10,715 board feet of sawlogs. A harvest cut in a five-acre stand of mature oak bordering Wilbur Brook yielded 15,000 board feet of quality sawlogs. Most of the trees harvested in this stand had an average diameter of 25 to 30 inches and were about 80 years of age. Past hurricanes had broken limbs and created stress cracks permitting the entry of decay fungi. The value of the overmature oak would have steadily declined if the stand had not been cut.

CULTURAL OPERATIONS

An 80 percent release of underplanted white pine was applied to 27 acres on which occurred an overstory of low-quality hardwood, predominantly oak. A little Beaver Tree Girdler was used to girdle undesirable trees. Occasional oak were left in the stand to maintain a hardwood-coniferous mixture and provide some protection from white-pine weevil.

Brushkings were used to cut sprout growth and competing brush species in 15 acres of young coniferous plantations. The removal of hardwood competition encourages vigorous growth and maximum survival of the planted trees.

REFORESTATION

Eastern hemlock seedlings were underplanted in two plantations with known infection centers of *Fomes annosus*. Hemlock is tolerant of shade and should survive under the present coniferous cover. It is hoped that the species will offer some resistance to attack by *F. annosus*. A total of 4444 coniferous seedlings were planted in the spring of 1961.

PROTECTION OF THE WATERSHED

Fires: Watershed cover at the Source of Supply was again spared of any serious forest fire. Three small fires burned over a total of only one acre of woodland owned by the City. The fire tower located on Tunk Hill was manned during periods of medium and high danger. Constant communication was maintained with State detection and suppression personnel.

Forest Insects: Damage caused by mites, cone weevils, Pales weevil (*Hylobius pales*), and the white-pine weevil (*Pissodes strobi*) continued to be of significance in the management of the forest stands. The occurrence of foliar damage to spruce and hemlock caused by an outbreak of mite in 1960 remained stationary and in some instances declined in 1961. The growth rate of spruce is noticeably retarded in plantations where mite attack was prevalent.

Most of the older white-pine plantations have been extensively damaged by white-pine weevil. The larvae of the weevil feed on the terminal shoot eventually killing it. One or more of the lateral branches in the whorl below the dead leader usually assume the role of the terminal leader resulting in a crooked or forked tree. The timber value of white pine is therefore seriously downgraded.

Controlled application of an insecticide to only the terminal shoot before adult weevils emerge from hibernation in the spring will effectively prevent the adult from laying eggs on the leader. In a cooperative venture with the United States Forest Service, a two-acre area planted to white pine in 1951 has been under continuous treatment and surveillance. Ten years after planting, a sufficient number of unweeviled crop trees remain on the area. The height growth on many trees averages over two feet a year, and diameter growth frequently exceeds one-half inch per year. All white-pine plantations and some areas containing natural reproduction of treating age are now being considered for weevil-control measures.

Forest Diseases: The spread of *Fomes annosus* continues to be the principal threat to the management of plantations. The

reaction of different species to the root-rot disease has become evident. Individual red pine will often die within several years after infection. White pine and spruce will remain apparently healthy and suddenly be windthrown exposing decayed roots that are no longer able to support the tree.

As stated in a previous report, the disease frequently acts as a butt rot. Second and third thinnings in white-pine plantations have indicated decay in the lower portions of the bole caused by the disease. This butt decay is especially apparent in intermediate trees of good form that the technician would prefer to leave in the stand for the final timber crop.

A control measure practiced by Foresters in Europe is the application of creosote to freshly cut stumps to prevent the entry of *F. annosus* spores into the exposed wood and the ensuing spread of the fungus through the root systems. Plantations receiving a first thinning and thinned plantations that display little or no symptoms of the disease are being treated in this manner at the Source of Supply. The chief value of stump treatment is the protection of the plantation from an initial large-scale invasion by *F. annosus*.

Other Forest Injury:

The heavy snowfall of last winter made conditions desirable for extensive damage to recent plantings of larch and Douglas fir caused by field mice. This damage was particularly severe in open, grassy fields planted to these species. Mice were able to feed on and girdle sizable portions of the stems of young trees because of the snow.

The intense frost of May 30, 1961 killed new growth on Douglas fir and spruce seedlings. Douglas fir, a tree indigenous to the Western United States, is susceptible to frost injury when planted in this area.

Control of Trespass: Because of increased violations of trespass on the reservation, it became necessary to revise the schedule of watershed inspection to include the early morning and evening hours. Local and State authorities also responded to

the need for protection. Through the efforts of inspection personnel and the Scituate Police Department, six fishing violators were prosecuted and other violators were given a final warning. It is recommended that the expanded inspection schedule be retained as a permanent program to keep the incidence of trespass at a minimum.

GAINER DAM—HYDRO-ELECTRIC PLANT

The Hydro-Electric Station at Gainer Dam has been in satisfactory operation throughout the year. The plant was operated on 279 days for a total of 3,660 hours. Power generated from the discharge of 26,231,920,000 gallons of water through the 1875 KVA Hydro-Electric Turbo Generator to the Pawtuxet River amounted to 5,123,100 kilowatt hours, using 5,120 gallons of water for each kilowatt hour generated. Of the power generated, 4,731,300 kilowatt hours, or 92.35%, was sold to the Narragansett Electric Company, and 289,330 kilowatt hours were used at the Water Purification Works. The rate of discharge through the station, concentrated during the hours of down-stream mill operations, averaged 172.00 million gallons per day.

Hydro-Electric Plant statistics on the basis of the "Contract Year" with the Narragansett Electric Company are shown in Table 8 of the Appendix.

WATER PURIFICATION WORKS

The Water Purification Works, located on the North Scituate-Hope Road about three-fourths of a mile from the Scituate Reservoir, has been in continuous and satisfactory operation throughout the year.

Construction of the Additions, Alterations, and Improvements, described in last year's report, continued without disruption of plant operations.

Water was drawn from Scituate Reservoir between elevations 213 and 220 and totalled 18,300,080,000 gallons, or an average of 50,140,000 gallons per day; the maximum for any

one day being 77,640,000 gallons on August 10, 1961 and the minimum 30,380,000 gallons on January 1, 1961.

This water was treated with Ferri-Floc, aerated, dosed with slaked lime, mixed in the tangential mixer, and coagulated in two concrete basins operated in series. Following a sedimentation period averaging approximately three and one-half days, it was filtered through rapid sand filters, treated with sodium silicofluoride, and finally chlorinated before being delivered into the Scituate Aqueduct leading to the water distribution system.

Influent flow and chemical treatment were carried on 24 hours daily to obtain a constant and unvarying degree of coagulation and filter efficiency. During most of the year the water was treated with Ferri-Floc and quicklime by the feeders and slakers located on the fourth floor of the Purification Works Head House. These feeders were the loss in weight gravimetric type, the automatic operation of each being controlled by an electric signalling device proportional to the rate of flow of water through the influent Venturi.

The two Ferri-Floc feeders and the two combination lime feeders and slakers have been replaced by three feeders of each type. The new units are located on the first floor of the Central Operations and Control Building; these also are the loss in weight gravimetric type, automatically paced by an electric signalling device proportional to the rate of flow of water through the influent Venturi. Each of the new machines is capable of handling 700 pounds of chemical per hour; with two of each type in operation sufficient capacity is available to provide a dosage of slightly more than two grains per gallon of each chemical at the peak influent flow of 105 million gallons daily. The third units are for emergency in case of a breakdown or repairs. Following a series of shakedown tests, the first of the three lime machines was placed in operation on July 27; use of the first Ferri-Floc feeder began on September 11.

Water for dissolving Ferri-Floc and for lime slaking was maintained at a temperature of from 90 to 100 degrees Fahrenheit. The Ferri-Floc was dissolved by using a ratio of

three pounds of water to each pound of chemical and the quicklime was slaked by using a ratio of five pounds of water to each pound of material.

Ferri-Floc used totalled 1,633,844 pounds, or an average of 4,476 pounds daily; with a maximum for any one day of 7,608 pounds on July 13, 1961 and a minimum of 2,164 pounds on January 1, 1961. The dosage average 0.63 grains per gallon, the maximum for any one day being 0.72 grains per gallon and the minimum 0.49 grains per gallon.

Quicklime used during the year totalled 1,731,253 pounds or an average of 4,743 pounds daily; with a maximum for any one day of 8,301 pounds on September 12, 1961 and a minimum of 2,405 pounds on January 1, 1961. The lime dosage averaged 0.66 grains per gallon, the maximum for any one day being 0.75 grains per gallon and the minimum 0.54 grains per gallon.

Filters were operated a total of 72,376.44 hours during the year, at an average of 198.29 filter hours per day; the average length of filter runs being 81.43 hours which is 1.90 hours, or 2.3 per cent less than the average of 83.33 hours for the previous year. The maximum daily average of filter runs was 140.42 hours on October 5, 1960 as compared to a maximum of 144.00 hours during the previous year; and the minimum was 48.66 hours on May 27, 1961 as compared to a minimum of 36.87 hours during the previous year.

Wash water rates varied from 17 to 31 inches rise per minute, the rate of rise being adjusted inversely to the temperature of the wash water. Filters 1 to 10, exclusive of number 2, were washed at rates which varied from 17 to 30 inches rise per minute and an average sand expansion of 35%. These nine filters have sand with an effective size of 0.52 millimeters. Filter number 2 which has 0.65 millimeter sand was washed at rates varying from 26 to 31 inches per minute rise and an average sand expansion of 25%. Filters 11, 12, 13 and 14 which have 0.46 millimeter sand were washed at rates varying from 18 to 27 inches rise per minute and an average sand expansion of 39%. A total of 58 tests were made during the year to determine the sand expansion and rate of rise. The total wash water used

was 115,335,000 gallons, an average of 316,000 gallons per day, or 128,435 gallons per wash. The 115,335,000 gallons of wash water used was 1.9% more than the 113,144,000 gallons for the previous year.

The total water filtered for the year amounted to 16,611,322,000 gallons, an average of 45,510,000 gallons daily; the maximum day being 69,644,000 gallons on August 16, 1961, and the minimum 28,905,000 gallons on January 1, 1961. The average rate of filtration per filter was 5,510,000 gallons per day, and the average amount of water filtered per filter per run was 18,690,000 gallons, or 0.2% more than the 18,650,000 gallons for the previous year.

The total plant effluent, or pure water delivered to the Scituate Aqueduct and the Kent County Water Authority, totalled 16,495,987,000 gallons, an average of 45,194,000 gallons per day, with a maximum of 68,911,000 gallons on August 16, 1961 and a minimum of 28,791,000 gallons on January 1, 1961.

Fluoridation of the plant effluent was carried on continuously throughout the year. Up to July 27 the water was treated with sodium silicofluoride by a loss in weight gravimetric type feeder, the automatic operation of which was controlled by an electric signalling device proportional to the rate of flow of water into the Scituate Aqueduct. This single feeder was replaced by two new fluoridizers of the loss in weight gravimetric type located on the first floor of the Central Operations and Control Building; these also are automatically paced by the rate of flow, and have been in operation for the balance of the year. Each unit is equipped with a non-flooding gate to prevent any possible overtreatment, has a capacity of 75 pounds of material per hour, and is capable of meeting the maximum plant demand at the top permissible dosage of 1.2 parts per million of fluoride ion. The second unit provides 100% standby service in case of emergencies. With respect to fluoridation, the City of Providence Water Supply Board is acting solely as the agent of the R. I. State Health Department in carrying out their directives relative to the chemical used, the applied dosage, and the type of feeding equipment. Sodium silicofluoride has been

added in amounts sufficient to produce a fluoride ion concentration throughout the distribution system of 1.2 parts per million from October 1, 1960 to May 31, 1961 and 1.0 part per million from June 1, 1961 to September 30, 1961.

Plant effluent delivered to the Scituate Aqueduct and treated with sodium silicofluoride amounted to 16,060,513,000 gallons, an average of 44,001,000 gallons per day. Sodium silicofluoride used during the year totalled 233,672 pounds, or an average of 640 pounds per day; with a maximum for any one day of 887 pounds on August 16, 1961 and a minimum of 387 pounds on July 16, 1961. The actual dosage of fluoride ion averaged 1.04 parts per million. Water delivered to the Kent County Water Authority is not treated with sodium silicofluoride.

Chlorination of the plant effluent delivered to the Scituate Aqueduct was carried on continuously out of abundant caution. Up to September 27 facilities for treatment included two gas feed chlorinators, one in use and one for standby purposes. Each unit was capable of treating the maximum plant flow with a dosage of 0.5 parts per million. These machines were replaced by two new gas feed chlorinators, located in a separate room next to the fluoride feeders. Each chlorinator has sufficient capacity to feed up to 2000 pounds in 24 hours. The units are presently equipped with 500 pound a day meters, and each unit is capable of handling a dosage of 0.57 parts per million for the maximum plant output. Meters of 2000 pound per day capacity are easily interchangeable with the 500 pound meters to utilize the full capacity of the machines. With 2000 pound per day meters each feeder is capable of treating the maximum plant effluent of 105 million gallons daily with a dosage of 2.3 parts per million. As with the fluoride feeders, the second unit provides 100% standby service.

Plant effluent delivered to the Scituate Aqueduct and treated with chlorine totalled 16,161,489,000 gallons, an average of 44,278,000 gallons per day. Water delivered to Kent County is chlorinated separately by their facilities. Chlorine used during the year totalled 54,375 pounds, or an average of 149 pounds per day; with a maximum for any one day of 295

pounds on July 31, 1961 and a minimum of 98 pounds on January 1, 1961. The chlorine dosage averaged 0.40 parts per million, the maximum and minimum dosages being 0.43 and 0.37 parts per million. Chlorine residual of the water at a point adjacent to the main aqueduct averaged 0.032 parts per million, and of the tap water at the Providence City Hall 0.006 parts per million.

The following statistics show that the chemical cost of treatment for the year ended September 30, 1961 was \$4.71 per million gallons, or 3.1% less than the figure of \$4.86 last year. The price per ton of Ferri-Floc ranged between \$53.05 and \$55.26 this year compared with a price of \$55.05 during all of the previous year. The price per ton of quicklime varied from \$20.92 to \$26.75 as against \$20.92 for the entire previous year. Sodium silicofluoride prices were \$139.35 to \$139.39 a ton; last year the price remained at \$139.39. Up to September 17, 1961 chlorine was purchased for \$155.00 per ton. With the change from use of 150 pound cylinders to ton drums, the cost was reduced to \$135.00 a ton; last year the price per ton ranged between \$155.00 and \$175.00.

	Year Ended Sept. 30 1958	Year Ended Sept. 30 1959	Year Ended Sept. 30 1960	Year Ended Sept. 30 1961
Ferri-Floc	0.65 G.P.G.	0.63 G.P.G.	0.66 G.P.G.	0.63 G.P.G.
Quicklime	0.66 G.P.G.	0.66 G.P.G.	0.67 G.P.G.	0.66 G.P.G.
Sodium Silicofluoride	1.04*	1.04*	1.03*	1.04*
Chlorine	0.32 P.P.M.	0.33 P.P.M.	0.36 P.P.M.	0.40 P.P.M.
Length of Filter Runs	79.92 Hrs.	76.24 Hrs.	83.33 Hrs.	81.43 Hrs.
Tap Water Color ..	5 P.P.M.	6 P.P.M.	6 P.P.M.	5 P.P.M.
Tap Water Iron ..	0.02 P.P.M.	0.00 P.P.M.	0.01 P.P.M.	0.01 P.P.M.
Cost of Chemicals per M.G. of Water Treated	\$4.86	\$4.53	\$4.86	\$4.71

* Dosage expressed as P.P.M. (parts per million) of fluoride.
G.P.G. = Grains per gallon.

Operating figures and statistics relative to chemical use and cost will be found in Tables 9 and 10 of the Appendix.

The Ferri-Floc used as a coagulant was obtained under contract from Faesy & Besthoff, Inc., New York, for the period October 1 to December 6, 1960 at \$55.05 per ton; from Decem-

ber 7, 1960 to April 4, 1961 at \$55.25; from April 5 to August 2, 1961 at \$53.05; from August 3 to September 10, 1961 at \$55.26 (in bags); and from September 11 to September 30, 1961 at \$53.05 per ton.

Specifications for Ferri-Floc read as follows: "The material furnished shall be ferric sulphate. It shall contain not less than sixty-nine per cent (69%) of water soluble ferric sulphate ($\text{Fe}_2(\text{SO}_4)_3$). The content of ferrous iron shall not exceed one and one-half per cent (1.5%) as (Fe). It shall be free of foreign material or material deemed undesirable in water purification processes. The material shall be in granular or lump form. Not more than forty-five percent (45%) shall pass a 20 mesh per inch screen, and no particle shall be larger than will pass a one-inch mesh screen. Deliveries to be made in cars suitably lined to protect the material from moisture and foreign matter." The specifications contain a provision that allows us to penalize the manufacturer at the end of the contract year in event that the total amount of material received falls below an average of sixty-nine per cent (69%) of water soluble ferric sulphate ($\text{Fe}_2(\text{SO}_4)_3$).

Ferri-Floc has been delivered in bulk carload lots to the railroad siding at Washington, R. I., about five and one-half miles from the Water Purification Works. Deliveries to the plant have been made by our force with the use of a Pneumatic Transfer Truck, which removes the Ferri-Floc from the car and delivers it into a storage silo of glazed segment tile masonry. This silo has an inside diameter of 16 feet, a height of 55 feet and a capacity of 180 tons of the material. From the beginning of the year to August 3, 1961 the stored Ferri-Floc in the silo was conveyed pneumatically through a 4-inch underground conveyor pipe approximately 600 feet to a 40-ton concrete storage and feeding hopper on the fifth floor of the Purification Works Head House by means of a motor-driven air blower and control equipment, housed in a single story brick building adjacent to the silo. The total storage of 220 tons of material assured a maximum of approximately 98 average days' supply. On September 15, 1961 a new combination suction-pressure pneumatic conveying system was placed in operation. This is located on

the second floor of the Central Operations and Control Building and is complete with motors, blower, receiver, dust filters, gates, control panel, etc., and transfers the material from the primary 180-ton storage silo to three 15-ton secondary storage hoppers located directly over the three Ferri-Floc feeders. This system is capable of transferring material from the silo to the hoppers, a distance of approximately 400 feet, at a rate of 4 tons per hour. The total storage of 225 tons assures a maximum of approximately 101 average days' supply. After this new conveying system and the new Ferri-Floc feeders had been placed in operation, demolition work began on the old conveying system, feeders, and the Purification Works Head House.

Analysis of the Ferri-Floc received has shown an average ferrous iron content of 0.44% which is 1.06% less than the maximum of 1.50% allowed by the specifications. The average water soluble ferric sulphate ($\text{Fe}_2(\text{SO}_4)_3$) content of the fourteen deliveries received was 73.13%, or 4.13% more than the minimum of 69% demanded by specification requirements. The average amount of material passing a 20 mesh per inch screen was 47.6% as compared to the permissible maximum of 45.0%. The following table shows the date of delivery, together with the per cent of ferrous iron, per cent of water soluble ferric sulphate, and per cent passing a 20 mesh per inch screen.

Date Received	Percent Ferrous Iron	Percent water soluble Ferric Sulphate	Percent passing a 20 mesh per inch screen
December 7, 1960	0.16	72.53	56.9
December 16, 1960	0.28	72.17	47.4
December 16, 1960	0.22	72.39	47.2
February 27, 1961	0.25	74.75	56.7
April 5, 1961	0.20	72.53	47.8
May 1, 1961	0.21	73.82	51.1
May 22, 1961	0.44	73.21	40.5
May 31, 1961	0.37	71.85	46.4
June 21, 1961	0.69	72.53	40.2
June 26, 1961	0.63	73.28	58.1
August 3-7, 1961 (in bags) }			
August 25, 1961 (in bags) }	0.93	73.93	38.6
September 11, 1961	0.64	73.60	45.0
September 25, 1961	0.69	74.11	43.0

All deliveries met specification requirements with respect to ferrous iron and ferric sulphate contents, but eight failed to meet

screen size requirements. The manufacturer was notified to this effect and requested to conform to his obligations. Towards the end of the year we were advised that the conditions responsible for the particle fineness had been found and corrected. As may be seen, the last two shipments of material in bulk form met particle size requirements.

Quicklime was obtained under contract with the New England Lime Company, Adams, Massachusetts from October 1, 1960 to May 23, 1961 at a price of \$20.92 per ton. Specifications for the quicklime purchased from this company read as follows: "The material furnished shall be granular or fine grain quicklime, of which 100% shall pass a 4 mesh per inch screen and not less than 90.0% shall be retained on a 100 mesh per inch screen. Insoluble matter shall be less than 2% and magnesium oxide shall be less than 3%. It shall have an available calcium oxide (CaO) content of not less than 90%. The calculation of the available lime shall be on an 'As Received' basis."

Analysis of the quicklime received from the New England Lime Company showed an average available calcium oxide content of 92.7%, which is 2.7% greater than specification requirements. The per cent of material passing a 4 mesh per inch screen was 100% on every delivery and the per cent retained on a 100 mesh per inch screen averaged 99.4%. The following table shows the date of delivery, together with the per cent of available calcium oxide and the per cent of material retained on a 100 mesh per inch screen:

Date Received	Percent Available Calcium Oxide	Percent Retained on a 100 mesh per inch screen
November 14, 1960.....	91.5	98.6
November 21, 1960.....	93.4	99.3
November 28, 1960.....	92.7	99.2
January 4, 1961.....	94.3	99.2
January 6, 1961.....	93.1	99.5
January 9, 1961.....	92.3	99.8
March 8, 1961.....	90.0	99.6
April 7, 1961.....	92.8	99.5
April 21, 1961.....	93.9	99.7

The table shows that all nine deliveries met specification requirements.

Shipments of quicklime received from May 24 to September 30, 1961 were obtained under contract with the Giffordline Chemical Company, Inc., Cranston, Rhode Island at a price of \$21.02 per ton. Two 30-ton special shipments of material in bags were purchased from this company at \$26.75 per ton. Specifications covering shipments of quicklime from this supplier were the same as governed material received from the New England Lime Company.

Analysis of the quicklime received from the Giffordline Chemical Company, Inc. showed an average available calcium oxide content of 91.4%, which is 1.4% greater than specification requirements. The per cent of material passing a 4 mesh per inch screen was 100% on every delivery tested and the per cent retained on a 100 mesh per inch screen averaged 91.5%. The following table shows the date of delivery, together with the per cent of available calcium oxide and the per cent of material retained on a 100 mesh per inch screen:

Date Received	Percent Available Calcium Oxide	Percent Retained on a 100 mesh per inch screen
May 24, 1961.....	93.7	93.3
May 31, 1961.....	89.7	96.1
June 14, 1961.....	Sample accidentally destroyed	
June 26-27, 1961 (in bags).....	93.4	89.5
July 12-13, 1961 (in bags).....	90.3	88.6
July 24, 1961.....	88.0	88.2
July 31, 1961.....	89.8	91.8
August 2, 1961.....	92.5	93.0
August 16, 1961.....	93.9	88.8
August 23, 1961.....	92.8	90.9
September 1, 1961.....	89.7	94.7

The table shows that one of the shipments failed to meet specification requirements with respect to the available calcium oxide content (contents of 89.7% and 89.8% were considered as 90%). Of the ten shipments tested, four showed an amount retained on a 100 mesh per inch screen that was below the permissible minimum of 90.0%. The manufacturer was notified to this effect and requested to conform to his obligations. Following receipt of the August 16, 1961 delivery, which showed only 88.8% retained on a 100 mesh per inch screen, the supplier was informed that future shipments would not be accepted unless they met the specification requirements in full.

The quicklime has been delivered in bulk carload lots to the railroad siding at Washington, R. I. Deliveries to the plant have been made by our force with the use of the same Pneumatic Transfer Truck used for transporting the Ferri-Floc. The material has been delivered into a storage silo of the same size and construction as the Ferri-Floc silo. From the beginning of the year to June 28, 1961 the stored quicklime in the silo was conveyed pneumatically through a separate system which was a duplicate of that used for handling the Ferri-Floc. As with the Ferri-Floc, the 220-ton storage capacity of the silo and the concrete storage and feeding hopper on the fifth floor of the Purification Works Head House assured a maximum of approximately 93 average days' supply. On July 27, 1961 a new combination suction-pressure pneumatic conveying system was placed in operation. This is a duplicate of the one used for handling Ferri-Floc and has its own separate motors, blower, receiver, dust filters, gates, control panel, etc. It is located opposite the Ferri-Floc system on the second floor of the Central Operations and Control Building and transfers lime from the primary 180-ton storage silo to three 15-ton secondary storage hoppers located directly over the three combination lime feeders and slakers. This system, like the one used for Ferri-Floc, is also capable of transferring material from the silo to the hoppers, a distance of approximately 400 feet, at a rate of 4 tons per hour. The total storage of 225 tons assures a maximum of approximately 95 average days' supply.

The liquid chlorine used to treat the water was obtained under contract with the Fields Point Manufacturing Company, Inc., Providence, for the period October 1, 1960 to September 17, 1961 at \$0.0775 per pound. This material was delivered to the Purification Plant by our force in lots of 14 cylinders, each containing 150 pounds of chlorine. On September 18 two one-ton cylinders of liquid chlorine were purchased from the same manufacturer at a cost of \$0.0675 per pound. These cylinders were also delivered to the plant by our own force; special tramrail equipment was used to transfer the material from tailboard delivery to platform scales. Upon completion of the Additions, Alterations, and Improvements, two one-ton cylinders will be carried on each of two platform scales, with facilities for storing

six additional cylinders in the same room. This room is adjacent to the fluoride receiver units on the second floor of the Central Operations and Control Building, and directly over the gas feed chlorinators. A special exhaust system is provided to remove any escaping chlorine fumes.

Sodium silicofluoride was purchased under contract with the Henry Sundheimer Company, New York, for the period October 1, 1960 to July 31, 1961 at \$139.39 per ton, and for the period August 1 to September 30, 1961 at \$139.35 per ton. The specifications covering shipments received up to May 31, 1961 were the American Water Works Association Tentative Standard Specifications for Sodium Silicofluoride, AWWA B702-54T, approved as tentative May 27, 1954. Shipments received after May 31 were covered by the American Water Works Association Standard for Sodium Silicofluoride, AWWA B702-60, approved May 15, 1960. Both specifications were modified slightly by us as to size and type of shipping containers, and to exclude material not of domestic manufacture. Among other requirements the specifications call for a minimum of 98 per cent sodium silicofluoride which corresponds to approximately 59.4 per cent fluoride ion. The average sodium silicofluoride content of the shipments tested averaged 98.3%.

From the beginning of the year to July 26, 1961 a special pneumatic system was used to transfer the material from the drums to the storage collector supplying the fluoridizer hopper. There was only one fluoridizer, of the loss in weight gravimetric type. It was equipped with a non-flooding gate to prevent any possible over treatment, and was operated automatically by an electric signalling device proportional to the rate of flow of water into the Scituate Aqueduct. A new suction type pneumatic conveyor system was placed in operation on July 27, 1961; demolition of the old system began shortly after this date. This new handling system is located on the second floor of the Central Operations and Control Building and is complete with filter receiver units, vacuum pumps, motors, silencers, etc. The chemical is stored in 400 pound fiber drums in an adjacent room and is conveyed to storage receiver units, a distance of approximately 70 feet, at a rate of 75 pounds per minute. There are

two receiver-storage-filter combinations, each with a capacity of 6000 pounds, located directly over the two new fluoridizers described earlier in this section of the report.

Number 6 fuel oil used for heating the plant from October 1960 to April 1961 totalled 61,084 gallons, an average of 5,090 gallons per month. Number 2 fuel oil was used during the entire year for heating water and amounted to 5,387 gallons, an average of 449 gallons per month.

WATER PURIFICATION WORKS LABORATORY

The fully equipped and modern laboratory maintained at the Purification Works for control over the quality of the water supply, from the raw water on the watershed to the tap at the consumers' premises, has been in operation throughout the year, with constant vigilance being exercised by the chemists and bacteriologists. Samples of tap water were obtained daily from not less than nine consumers' taps in various parts of the distribution system, the Providence City Hall, and from Longview and Neutaconkanut distribution reservoirs. Also, samples for analysis were obtained from the brooks, streams and reservoirs on the watershed, the raw water from the lower intake of Scituate Reservoir, the reservoir surface water, Gainer Memorial Dam meter chamber, Fiskeville Reservoir, twelve locations on the Pawtuxet River below the Dam, the various stages of the purification process, coincident with the investigation of complaints, from extensions to the distribution system, and selected locations in the distribution system.

The total number of samples obtained from all sources during the year amounted to 12,634 which, based on a forty-hour work week means that one sample or another was obtained every 10 minutes. Tests made on these samples included chemical, sanitary chemical and mineral analyses, and bacteriological and microscopical examinations. The total number of tests made amounted to 96,262 which, based on a forty-hour work week, means that the water was receiving one test or another every 78 seconds. Each delivery of Ferri-Floc and of quicklime was tested to determine conformance to specifications and the opti-

mum dosages required for coagulation and pH control. Deliveries of sodium silicofluoride were also tested, not only for conformance to specifications but to assure that the proper concentration of fluoride ion would be maintained throughout the distribution system. Filter washings were regulated by means of tests on the sand expansion and rate of rise of wash water. Samples taken after disinfection of extensions to the distribution system were tested for chlorine residual, coliform bacteria, 35°C and 20°C bacteria before permitting any extension to be placed in service. Consumer complaints were serviced and recommendations made to eliminate the source of trouble.

Some idea of the laboratory control over the quality of the water supply may be had by a comparison of our sampling schedule with that recommended by the U. S. Public Health Service Standards. The following table taken from the Standards shows the minimum number of bacteriological samples that should be obtained from the distribution system per month for any given population served:

Population Served	Minimum Number of Samples per Month
2,500 and under	1
10,000	7
25,000	25
100,000	100
1,000,000	300
2,000,000	390
5,000,000	500

The population served by the City of Providence water supply is approximately 383,134. In accordance with the above table, and recommendations given in the Standards, the minimum number of bacteriological samples that should be obtained from the distribution system per month for this population is 200. The actual number of bacteriological samples obtained in the distribution system for the year amounted to a total of 3,279, or an average of 273 per month, a figure 37% greater than recommended by the Standards and more than is required for a population of 700,000. A sample for chemical and sanitary chemical analysis was also obtained with each bacteriological sample.

Coagulation tests were made on one liter quantities of raw water treated with various amounts of Ferri-Floc and slaked lime, simulating all the operations of the purification processes on a laboratory scale for the purpose of determining the most economical dosage consistent with good coagulation.

Civil Defense activities were continued during the year, consisting of participation in the annual state and nationwide Civil Defense exercise and testing of the water for radioactivity.

Samples of water obtained from dead end cast iron mains were tested for the fluoride concentration. These tests, together with earlier studies, established that no conditions known to exist in a water main will cause extraction of significant amounts of fluoride from the water or solution from coatings which now exist there.

Rigid laboratory control has resulted in the continuation of economies consistent with an excellent quality of water. Constant vigilance over the chemical treatment machines and filter operation has aided greatly in keeping the cost of treatment low despite high costs for chemicals. These operations have been responsible for maintaining long filter runs and an excellent quality of water.

Tables 11 to 21 of the Appendix show statistics relative to the quality of the water and the kind and number of laboratory examinations made during the past year.

TRANSMISSION AND DISTRIBUTION

SCITUATE AQUEDUCT

The Scituate Aqueduct, which conveys the effluent water from the Water Purification Works in Scituate to the distribution system, has been in continuous and satisfactory service throughout the year. Maintenance of the property along this line included cutting and burning brush, repairs to grassed embankments, repairs to fencing, and other miscellaneous work as required.

HIGH SERVICE PUMPING STATIONS

Neutaconkanut and Bath Street Pumping Stations, supplying water to the high service portion of the distribution system generally above elevation 140, and to the special high pressure fire service in the congested area of downtown Providence, have been in satisfactory operation throughout the year.

Water pumped into the high service area totalled 2,807,231,000 gallons, or an average of 7,691,044 gallons per day.

Neutaconkanut Station pumped 1,042,483,000 gallons through the east Venturi and 820,898,000 gallons through the west Venturi meter for a total of 1,863,381,000 gallons, or 5,105,153 gallons per day, and Bath Street Station pumped 943,850,000 gallons, or 2,585,890 gallons per day.

The total power required for pumping at both stations amounted to 1,088,799 kilowatt-hours. Neutaconkanut Station required 696,500 kilowatt-hours, and Bath Street Station 392,299 kilowatt-hours. The cost of power at both stations was \$19,737.56, or \$7.03 per million gallons pumped.

Test runs of the auxiliary gasoline engine driven pump at Neutaconkanut Pumping Station were made weekly, the pump being operated a total of forty-nine hours and thirty minutes, pumping 18,840,000 gallons during the year. Periodic test runs of the auxiliary gasoline engine driven pumps at the Bath

Street Pumping Station were made throughout the year. These pumps were operated a total of twenty-seven hours and fifteen minutes, pumping 3,600,000 gallons for the year.

Operating statistics for the high service pumping stations will be found in Tables 22 and 23 of the Appendix.

DISTRIBUTION RESERVOIRS

The 38.58 million gallon Neutaconkanut Low Service Distribution Reservoir on Neutaconkanut Hill, Johnston, and the 11.94 million gallon Longview High Service Distribution Reservoir on Mineral Spring Avenue and Smithfield Road in North Providence have been in continuous and satisfactory operation during the year.

Routine maintenance activities were carried on with respect to the care of equipment, grounds, fencing, etc.

Operating statistics for the Distribution Reservoirs will be found in Tables 24 and 25 of the Appendix.

WATER DISTRIBUTION SYSTEM

The water distribution system has been maintained in satisfactory and continuous operation throughout the year. Extensions of mains, the installation of various types of valves, hydrants and services, and necessary repairs and replacement of the system's appurtenances were made when and where required. The construction of new highways and the reconstruction and repairs to existing highways during the year accounted for the major part of the repairs to and the replacement of the appurtenances.

The amount of pipe laid during the year, all sizes, totalled 42,758.13 feet including 38,621.42 feet of asbestos-cement pipe and 4,136.71 feet of cement lined cast iron pipe.

A total of 13,774.60 feet of pipe was removed or abandoned, resulting in a net increase to the distribution system of 28,983.53 feet. In the City of Providence, the department laid only 7,330.06 feet of water main but removed or abandoned 13,-

234.66 feet resulting in a decrease of 5,904.60 feet. In the City of Cranston, the net increase amounted to 19,242.54 feet, in the Town of Johnston 9,640.58 feet, and in the Town of North Providence 6005.01 feet.

At the end of the year the total length of mains in the distribution system aggregated 766.46 miles including 12.87 miles in the special high service fire system in the City of Providence. Asbestos-cement pipe in the system totalled 818,168.54 feet, consisting of 459,798.73 feet of 6-inch, 322,678.59 feet of 8-inch, 23,660.62 feet of 12-inch, 8,615.28 feet of 16-inch and 3,415.32 feet of 20-inch. Prestressed reinforced concrete steel cylinder pipe totalled 54,628.28 feet, consisting of 2,380.54 feet of 16-inch, 32,694.08 feet of 24-inch, and 19,553.66 feet of 30-inch. Reinforced concrete steel cylinder pipe totalled 36,597.00 feet consisting of 715.00 feet of 36-inch, 15,312.00 feet of 48-inch and 20,570.00 feet of 60-inch. Steel pipe totalled 10,032.00 feet including 1,584.00 feet of 48-inch and 8,448.00 feet of 66-inch. The remaining footage consists of cast iron pipe including 1,921,250.53 feet of 6-inch, 524,675.99 feet of 8-inch, 13,017.62 feet of 10-inch, 353,805.32 feet of 12-inch, 140,781.59 feet of 16-inch, 16,360.34 feet of 20-inch, 63,178.76 feet of 24-inch, 59,725.89 feet of 30-inch, 9,235.80 feet of 36-inch and 25,449.62 feet of 42-inch, totalling 3,127,481.46 feet of cast iron pipe.

Details of pipe laid, removed and in use at the end of the year are shown in Tables 26 and 27 of the Appendix.

Stop gates installed during the year, including replacements, totalled 135. In Providence 33 six-inch including one inserting valve, 6 eight-inch, 3 twelve-inch including one rotary plug valve, and 8 sixteen-inch including three butterfly valves; in Cranston 16 six-inch, and 33 eight-inch; in Johnston 4 six-inch, and 17 eight-inch; in North Providence 4 six-inch, 5 eight-inch, and 6 twelve-inch stop gates were installed. Stop gates removed or abandoned during the year, including replacements, totalled 65; in Providence 39 six-inch, 6 eight-inch, 2 ten-inch, 2 twelve-inch, 8 sixteen-inch, 2 twenty-four-inch and 1 forty-eight-inch; in Johnston 1 six-inch and in North Providence 1 six-inch, and 3 twelve-inch. At the end of the year there was a total of

10,456 stop gates in use in the system ranging from 6-inch to 48-inch including 5 twelve-inch and 15 sixteen-inch rotary plug valves, and 4 sixteen-inch, 2 twenty-inch, and 2 forty-eight-inch butterfly valves.

Hydrant gates installed during the year totalled 142; in Providence 69 six-inch and 3 eight-inch; in Cranston 50 six-inch and 2 eight-inch; in Johnston 11 six-inch and 1 eight-inch, and in North Providence 6 six-inch. Hydrant gates removed or abandoned during the year totalled 21; in Providence 4 six-inch and 16 eight-inch; and in Cranston 1 six-inch. Hydrant gates in use at the end of the year totalled 4,054.

Gates on un-watering hydrants and blowoffs totalled 41, nine 6-inch, twenty-six 8-inch, and six 12-inch.

The total number of gates in the system, not including service gates, all sizes, in use at the end of the year totalled 14,551.

Details of gates in use on September 30, 1961 are shown in Table 28 of the Appendix.

Private pipes connected to the distribution system at the end of the year totalled 239. In Providence there was a total of 128, in Cranston 68, in Johnston 21, and in North Providence a total of 22.

A total of 813 services, general and fire supplies, were installed during the year; 245 in Providence, 308 in Cranston, 139 in Johnston, and 121 in North Providence. A total of 375 services were removed or abandoned; 309 in Providence, 45 in Cranston, 11 in Johnston, and 10 in North Providence. The number of active services in the system at the end of the year totalled 61,094 including both general and fire supplies, consisting of 61,029 metered services and 65 unmetered services. Active metered services at the end of the year constituted 99.89% of the total active services in the system.

Statistics relative to services will be found in Tables 29 and 30 of the Appendix.

Public fire hydrants in use at the end of the year totalled 4,583, which included 2,930 post type and 1,653 flush type hy-

drants. Post hydrant installations totalled 217, including 116 which replaced flush type hydrants, 19 replacing post type hydrants, and 82 new post type hydrant installations including 13 in Providence, 51 in Cranston, 12 in Johnston, and 6 in North Providence. Repairs to 19 post hydrants were made during the year.

Statistics relative to public fire hydrants will be found in Table 31 of the Appendix.

Leaks in the distribution and transmission mains totalled 52 during the year, 21 occurring at joints and 31 as a result of ruptured mains. Leaks at joints averaged 1 for every 36.50 miles of mains, while total leaks averaged 1 for every 14.74 miles of main.

The number of meters repaired and tested in our Meter Repair Shop was 9,523, while those receiving attention in the field numbered 184, making a total of 9,707 or 916 more than during the previous year. The cost of meter repairs in the shop averaged \$2.21 per meter as against \$2.69 last year. Meters requiring servicing in the field involved an average expenditure of \$3.63 during the current year as compared with \$2.66 the previous year.

The number, make and size of meters on active services at the end of the year are shown in Table 32 of the Appendix.

CONSUMPTION

Water consumption for the year ended September 30, 1961 amounted to 16,495,897,000 gallons, or an average of 45,194,238 gallons per day. This average was 1,863,566 gallons per day more than the average for the previous year. The increase occurred during every month, except June, ranging from 290,000 gallons per day in October 1960 to 4,440,000 gallons per day in September 1961. During the month of June 1961 the consumption was 40,000 gallons per day less than for June 1960.

The maximum daily consumption occurred on August 16, 1961 when 69,304,000 gallons were consumed, which was 15,-

396,000 gallons less than the record maximum of 84,700,000 gallons on June 17, 1957.

The maximum month's consumption was in August 1961 when 1,636,791,000 gallons were used, and the minimum month was February 1961 when 1,219,160,000 gallons were consumed.

Water consumption statistics will be found in Tables 33, 34, 35, 36, and 37 of the Appendix.

FINANCIAL SUMMARY

The gross income for the year ended September 30, 1961 totalled \$3,109,782.91, an increase of \$250,856.62 over the previous year. Revenue from the sale of water alone was \$2,758,603.26, an increase over the previous year of \$229,797.29. The remaining income of \$351,179.65 was received from other sources, including hydrant rentals, sale of power, installation of services, miscellaneous items, and the surplus in the Meter Revolving Fund. The receipts for these items show an increase of \$21,059.33.

During the year total payments for water main extensions amounted to \$125,378.13, an increase over the previous year of \$49,295.79. Income from service connection charges amounted to \$72,796.00, a decrease over the previous year of \$12,101.00. At the end of the year, unpaid water bills totalled \$234,582.13 as compared with \$213,948.74 at the beginning of the year, or 7.6% of the total net billing. Miscellaneous Accounts Receivable amounted to \$15,058.45 at the end of the year as compared with \$9,051.26 at the beginning of the year.

Operating expenses, including Taxes, Employees' Retirement System and Social Security payments, totalled \$1,832,882.65, an increase over the previous year of \$61,527.08.

Interest on the Bonded Debt, Payment to the Sinking Fund, plus the appropriation to the Water Depreciation and Extension Fund, totalled \$1,276,900.26. The aggregate of all expenditures of the Board during the year was \$2,752,882.65, which, deducted from the gross revenue of \$3,109,782.91, leaves a net balance of \$356,900.26. According to law this reverts to the Sinking Fund for the retirement of water bonds. As none of the bonds mature until 1962, at which time the next \$6,500,000.00 principal will be payable, there was no reduction in the gross bonded indebtedness during the year. The net bonded debt at the end of the present year was \$1,213,922.37, and at the end of the previous year \$1,959,083.99, a reduction of \$745,161.62.

Financial accounts of the department, tabulation of water works property, statements of revenues, various funds, outstanding bonds and sinking fund requirements, inventories and other statistics may be found in Tables 38 to 53 of the Appendix.

A summary of statistics of the Providence Water Supply Board for the year ended September 30, 1961 may be found in Table 54 of the Appendix.

Respectfully submitted,

PHILIP J. HOLTON, JR.

Chief Engineer

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TABLE 1
MONTHLY RAINFALL IN INCHES ON SCITUATE WATERSHED

STATIONS ON WATERSHED	YEAR ENDED SEPTEMBER 30, 1961												Monthly Avg.	
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.		Total
Rocky Hill.....	3.69	3.17	4.25	2.42	4.06	4.40	6.16	5.84	3.12	3.76	3.98	9.39	54.24	4.52
Hopkins Mills..	4.00	3.19	4.25	2.60	3.77	3.65	5.10	6.66	2.11	2.48	3.97	10.36	52.14	4.35
North Scituate.	3.66	2.68	4.31	3.22	3.57	4.50	5.95	5.24	2.71	2.88	4.21	8.78	51.71	4.31
Westcott	3.43	3.21	3.98	4.84	2.85	4.17	5.74	5.21	1.86	3.07	4.56	9.20	52.12	4.34
Gainer Dam...	3.14	2.06	4.30	3.10	3.14	4.62	6.67	5.29	1.46	2.85	3.38	9.41	49.62	4.14
AVERAGE..	3.58	2.86	4.26	3.24	3.48	4.27	5.92	5.65	2.25	3.01	4.02	9.43	*51.97	4.33

*Total of monthly averages.

TABLE 2
MONTHLY AND YEARLY RAINFALL IN INCHES ON SCITUATE WATERSHED

Year	YEARS ENDED SEPTEMBER 30												Jan.-Dec.		
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total	Year	Total
1915-1916	2.75(e)	2.88	5.86	1.88	5.88	2.46	3.60	4.83	5.71	7.58	1.33	1.24	45.80	1916	42.56
1916-1917	2.61	2.34	3.30	3.96	2.18	4.91	2.70	4.15	4.56	5.11	6.13	2.66	40.99	1917	43.16
1917-1918	6.71	0.48	3.23	3.56	3.75	2.15	2.70	3.12	4.45	5.11	4.14	8.70	50.00	1918	47.09
1918-1919	1.07	2.60	3.75	4.89	3.42	6.65	4.31	5.99	7.93	3.47	6.55	6.07	53.92	1919	56.42
1919-1920	2.29	5.05	2.58	3.03	6.10	4.90	3.06	3.95	7.93	4.44	3.86	3.04	53.45	1920	55.81
1920-1921	1.34	5.85	5.09	3.46	3.06	3.72	5.43	3.73	4.30	6.80	2.97	2.53	58.90	1921	47.84
1921-1922	1.76	8.02	2.54	1.91	2.67	6.40	1.98	5.22	6.34	8.36	9.09	5.33	59.44	1922	54.76
1922-1923	2.92	1.41	3.11	6.78	1.82	2.73	5.92	1.48	4.93	2.78	2.33	2.15	39.38	1923	48.39
1923-1924	5.67	5.68	5.10	4.49	2.92	2.80	6.12	3.66	1.49	1.72	5.85	2.58	50.78	1924	39.15
1924-1925	0.21	2.23	2.38	4.41	2.22	4.76	2.85	2.72	2.36	6.14	1.70	2.96	34.94	1925	44.45
1925-1926	4.32	4.83	5.18	3.26	6.10	3.73	2.86	2.27	1.74	3.80	3.94	1.89	43.52	1926	43.33
1926-1927	5.04	5.55	5.63	2.98	3.31	1.59	2.56	3.41	3.36	3.99	8.55	2.61	46.50	1927	52.45
1927-1928	3.99	2.50	3.21	5.20	4.89	3.92	5.43	1.45	3.91	5.05	5.50	4.80	55.98	1928	45.59
1928-1929	3.00	3.06	4.15	2.72	4.32	2.75	3.47	2.27	3.05	2.27	2.93	1.35	43.35	1929	43.95
1929-1930	3.36	4.65	3.10	3.55	2.57	6.37	7.55	3.47	3.05	3.33	3.00	1.35	34.77	1930	35.58
1930-1931	2.22	1.03	3.16	6.16	2.38	3.36	4.19	6.31	6.31	3.74	5.96	1.97	49.13	1931	44.43
1931-1932	0.63	7.13	2.09	3.81	2.57	6.16	1.97	2.57	2.75	2.57	6.44	11.75	49.16	1932	58.60
1932-1933	3.41	1.48	3.72	5.87	4.53	6.55	6.18	3.76	4.04	2.00	3.60	7.56	55.37	1933	48.13
1933-1934	3.25	4.44	3.53	7.54	3.00	4.03	5.24	3.98	4.79	2.20	3.89	7.37	48.51	1934	51.14
1934-1935	1.00	5.86	0.88	8.61	4.16	9.31	3.80	1.98	5.12	4.10	3.28	3.59	44.76	1935	41.30
1935-1936	2.04	1.25	9.83	5.02	2.45	4.09	3.42	3.05	3.40	2.98	2.63	7.72	52.45	1936	57.75
1936-1937	3.92	8.10	2.89	3.29	2.91	2.70	2.60	4.17	8.62	11.49	3.10	6.76	62.55	1937	50.58
1937-1938	2.64	3.91	3.64	3.08	3.06	5.86	4.53	0.64	2.95	1.20	6.52	3.47	43.80	1938	57.83
1938-1939	5.76	1.40	3.40	3.28	3.97	4.04	6.00	5.76	2.45	4.41	2.01	2.63	46.65	1939	44.17
1939-1940	2.00	6.81	2.28	3.12	3.37	2.97	1.56	3.16	4.92	5.90	4.90	0.20	40.09	1940	47.18
1940-1941	1.75	3.35	3.78	4.95	3.30	8.35	0.89	2.80	1.88	5.38	4.32	1.94	44.69	1941	51.98
1941-1942	4.26	5.52	6.39	3.56	1.95	3.68	3.90	2.80	3.17	3.71	2.15	1.30	41.98	1942	36.84
1942-1943	6.38	3.43	7.58	3.82	2.50	5.05	4.11	1.35	3.75	1.74	2.01	11.03	44.30	1943	48.82
1943-1944	2.21	8.45	4.33	3.45	5.79	2.13	3.36	4.89	5.17	2.74	3.06	2.84	48.92	1944	52.75
1944-1945	0.48	1.32	3.90	2.98	3.81	1.42	2.37	4.92	3.31	2.49	11.48	5.59	39.79	1945	42.01
1945-1946	3.26	6.42	3.91	7.14	2.57	4.25	5.40	3.37	4.10	4.86	2.91	4.02	59.79	1946	47.08
1946-1947	4.86	7.43	3.45	4.38	3.62	2.47	4.65	4.03	4.20	3.73	3.14	5.49	33.55	1947	55.70
1947-1948	2.27	3.47	2.79	3.68	4.62	3.99	3.68	3.51	0.10	1.24	6.07	3.59	43.79	1948	38.58
1948-1949	2.23	7.21	4.57	4.95	4.48	5.91	3.97	5.20	2.93	1.62	5.04	2.03	39.63	1949	45.11
1949-1950	4.14	0.64	5.53	4.88	4.81	4.13	4.41	3.97	2.71	3.36	3.08	2.41	50.08	1950	55.38
1950-1951	1.94	3.02	4.20	7.38	4.64	9.33	7.54	3.24	3.16	1.20	7.33	2.21	55.41	1951	45.26
1951-1952	5.37	6.22	5.96	2.91	3.16	4.36	5.37	4.91	1.67	4.27	2.94	2.74	59.10	1952	61.10
1952-1953	3.13	5.65	6.91	1.00	4.96	4.17	4.16	1.78	2.10	4.53	12.75	4.53	59.00	1953	57.44
1953-1954	11.48	5.23	0.72	5.30	4.39	7.91	3.84	2.42	0.72	0.96	1.56	3.98	53.15	1954	57.74
1954-1955	2.90	4.02	5.40	8.46	4.50	5.46	7.55	3.84	2.69	7.04	1.58	1.58	33.43	1955	49.06
1955-1956	3.07	5.50	7.47	2.90	2.46	4.50	5.01	1.55	5.55	6.74	4.58	6.12	66.28	1956	58.88
1956-1957	8.37	3.03	1.78	2.56	4.12	7.13	4.91	1.15	2.69	6.74	2.27	0.57	43.14	1957	53.82
1957-1958	3.53	5.60	4.26	3.59	5.65	3.27	3.06	4.40	1.15	4.86	2.55	8.10	56.04	1958	47.42
1958-1959	3.58	2.86	4.26	3.24	3.48	4.27	5.92	5.85	2.25	3.01	4.02	9.43	51.97	1959	50.52
1960-1961	3.55	4.67	4.06	4.12	3.77	4.47	4.27	3.57	3.61	3.86	4.49	4.14	48.58*	1961	48.53
Average.....	11.48	9.64	9.83	8.81	6.10	9.33	7.56	9.36	8.62	11.49	12.75	11.75	66.28	Max.	61.10
Minimum.....	0.21	0.48	0.72	1.00	1.82	1.42	0.89	0.94	0.10	0.96	1.33	0.20	33.43	Min.	35.58

(e) Estimated. *Total of monthly averages.

TABLE 3
MONTHLY AND YEARLY RUNOFF IN INCHES ON SCITUATE WATERSHED (92.8 SQ. MI.)

Year	YEARS ENDED SEPTEMBER 30												Jan.-Dec.		
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total	Year	Total
1915-1916	0.75(e)	1.24(e)	3.03(e)	2.50	3.70	3.99	4.64	3.69	3.42	2.74	1.09	0.42	31.21	1916	28.23
1916-1917	0.51	0.58	0.97	1.91	1.30	4.29	3.05	2.72	2.18	0.79	0.71	0.53	19.71	1917	22.41
1917-1918	1.79	1.59	1.38	1.83	4.04	3.17	3.40	2.74	1.24	0.47	0.81	0.82	33.78	1918	23.73
1918-1919	1.02	1.34	2.37	3.81	2.27	5.01	4.43	3.86	1.27	1.35	0.92	3.33	30.97	1919	32.65
1919-1920	1.45	2.25	2.71	1.19	1.69	9.60	5.10	3.73	4.15	1.38	0.79	0.34	34.38	1920	33.29
1920-1921	0.37	1.73	3.72	2.79	1.68	4.90	3.68	2.85	0.95	2.56	0.93	0.31	25.27	1921	24.52
1921-1922	0.24	1.65	2.68	1.13	1.66	4.81	3.92	3.50	2.39	3.50	3.59	4.39	33.60	1922	33.32
1922-1923	1.66	1.26	1.37	4.16	2.46	6.10	4.06	2.68	1.13	0.64	0.40	0.25	26.19	1923	29.75
1923-1924	1.27	2.01	4.57	4.52	1.88	3.43	3.70	3.38	1.05	0.20	0.56	0.68	29.25	1924	23.31
1924-1925	0.49	0.45	0.97	0.91	3.63	3.41	2.46	1.46	0.52	0.58	0.39	0.32	15.61	1925	19.04
1925-1926	0.61	1.48	3.25	2.73	3.11	4.38	3.00	1.70	0.62	0.40	0.42	0.17	21.37	1926	21.03
1926-1927	0.70	2.13	2.09	3.34	2.64	3.05	1.71	2.03	1.44	1.08	1.59	0.64	21.76	1927	30.14
1927-1928	1.93	6.73	4.70	2.62	3.76	2.86	6.19	3.56	0.48	1.15	1.08	0.80	32.05	1928	23.03
1928-1929	1.21	1.16	1.99	4.02	2.58	2.74	1.84	0.88	0.42	0.09	0.04	-0.09	27.76	1929	25.18
1929-1930	0.07	0.63	1.18	1.96	2.11	5.95	3.21	3.10	2.97	0.69	0.85	3.27	12.02	1930	11.82
1930-1931	0.12	0.33	0.83	1.56	2.16	4.10	3.08	1.35	0.39	0.07	0.15	1.52	19.25	1931	21.87
1931-1932	3.48	6.29	2.26	2.24	2.70	6.78	6.08	1.93	1.57	0.17	0.25	1.52	35.57	1932	30.15
1932-1933	0.95	0.82	1.82	3.78	1.18	5.48	6.08	2.88	1.47	0.08	0.14	1.40	26.08	1933	27.13
1933-1934	1.33	1.91	3.21	4.78	2.83	4.22	4.05	1.71	1.78	0.62	0.14	0.76	26.50	1934	28.04
1934-1935	-0.13	1.09	0.75	3.94	1.93	11.31	4.45	1.59	0.44	0.03	-0.02	0.82	26.40	1935	21.82
1935-1936	0.46	0.43	6.06	4.59	2.77	3.34	3.79	2.52	0.75	0.02	0.60	0.57	25.00	1936	21.94
1936-1937	0.79	4.17	3.25	4.15	2.99	2.99	2.20	1.84	2.83	6.93	1.32	1.66	33.23	1937	27.16
1937-1938	1.72	1.90	3.62	2.11	4.12	5.24	4.90	1.08	0.31	0.24	0.52	0.09	24.57	1938	33.76
1938-1939	0.63	1.35	1.54	2.03	1.51	4.86	6.89	3.17	1.65	0.84	0.14	-0.04	24.29	1939	21.33
1939-1940	-0.07	1.63	1.65	1.53	2.88	2.42	1.95	1.16	1.33	0.34	0.10	-0.41	14.41	1940	23.98
1940-1941	0.15	0.52	0.86	1.87	2.94	7.14	1.75	1.06	0.59	0.86	0.26	-0.17	17.13	1941	12.43
1941-1942	0.45	1.86	4.56	2.75	3.49	4.40	2.68	3.01	0.36	0.02	-0.22	0.22	22.87	1942	22.77
1942-1943	0.60	0.95	0.42	0.73	1.23	3.24	3.53	1.08	0.43	0.26	-0.31	1.73	13.37	1943	17.97
1943-1944	0.30	3.16	3.55	2.91	2.88	5.61	2.15	3.10	0.36	0.15	-0.15	0.15	24.70	1944	18.61
1944-1945	0.06	1.88	4.59	3.93	2.98	3.70	1.43	2.50	1.65	0	2.35	0.56	25.63	1945	21.08
1945-1946	0.06	0.30	1.19	2.16	1.52	4.01	3.31	2.86	1.09	0.53	0.12	0.31	17.89	1946	20.47
1946-1947	0.00	2.94	1.39	1.53	3.15	7.16	3.76	5.25	3.12	0.26	0.02	0.09	29.05	1947	29.08
1947-1948	0.32	2.24	2.00	3.57	3.22	2.92	3.20	1.78	-0.02	0.56	0.15	-0.21	29.05	1948	29.08
1948-1949	0.53	0.37	1.26	2.03	2.42	4.16	3.01	2.20	1.00	-0.11	0.22	-0.02	16.79	1949	16.40
1949-1950	0.05	0.57	2.26	3.24	4.95	4.36	2.97	2.46	1.21	0.14	0.07	-0.20	25.38	1950	19.39
1950-1951	0.04	1.85	2.59	3.24	4.24	5.02	2.97	2.46	0.98	-0.35	0.53	-0.20	28.21	1951	30.16
1951-1952	0.34	4.62	4.30	4.24	3.30	3.24	2.46	3.20	0.20	0.07	0.05	0.13	27.17	1952	20.27
1952-1953	-0.70	0.37	1.15	4.61	4.35	7.24	6.36	3.20	0.33	0.01	-0.05	-0.13	27.83	1953	32.41
1953-1954	0.38	1.86	4.32	2.12	2.66	3.56	4.01	3.71	0.33	0.20	0.93	3.96	31.73	1954	32.15
1954-1955	1.33	3.65	5.90	2.46	3.61	4.26	2.76	1.98	0.89	0.02	4.04	1.19	35.92	1955	35.13
1955-1956	7.22	5.56	1.50	3.27	4.09	4.57	6.57	1.98	0.95	0.37	-0.22	0.05	15.95	1956	25.87
1956-1957	0.23	1.10	2.90	2.41	2.10	2.78	4.54	3.88	0.18	-0.41	-0.38	-0.22	15.95	1957	34.20
1957-1958	0.06	0.52	2.40	6.59	2.69	6.03	6.89	3.88	0.83	0.85	0.86	1.31	32.91	1958	55.65
1958-1959	2.05	1.85	1.83	1.65	2.58	5.85	4.52	1.85	1.23	2.09	0.07	-0.23	24.95	1959	26.29
1959-1960	1.17	2.18	4.40	3.29	5.09	3.15	4.01	2.19	0.35	0.38	0.00	0.20	27.75	1960	25.31
1960-1961	0.98	2.11	2.42	2.21	3.68	4.97	4.75	3.63	1.30	0.23	0.20	2.30	28.80	1961	27.93
Average.....	0.85	1.88	2.52	2.83	2.81	4.72	3.91	2.46	1.21	0.67	0.56	0.75	25.17*	Avg.	25.15
Maximum.....	7.22	6.73	6.06	6.59	5.09	11.51	6.89	5.25	4.15	6.93	4.04	4.39	35.92	Max.	35.65
Minimum.....	-0.70	0.15	0.42	0.73	1.18	2.42	1.43	0.58	-0.18	-0.41	-0.38	-0.41	12.02	Min.	11.82

(e) Estimated; *Total of monthly averages.

TABLE 4
MONTHLY AND YEARLY PERCENT OF RAINFALL COLLECTED ON SCITUATE WATERSHED
 YEARS ENDED SEPTEMBER 30

Year	YEARS ENDED SEPTEMBER 30												Jan.-Dec.		
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total	Year	Total
1915-1916	27.3(e)	43.0(e)	51.7(e)	133.0	63.9	162.2	128.9	76.4	59.9	37.1	81.0	33.9	68.1	1916	66.4
1916-1917	19.5	24.8	29.4	48.2	59.6	87.4	113.0	67.2	48.0	32.5	11.6	23.7	48.1	1917	51.9
1917-1918	26.7	33.1	42.7	51.4	68.2	147.4	174.6	71.8	27.6	9.2	19.8	20.6	47.5	1918	50.4
1918-1919	95.3	51.5	63.2	77.9	106.4	82.8	102.8	64.4	54.8	24.7	13.7	54.8	57.4	1919	57.9
1919-1920	63.3	44.6	103.0	39.3	27.7	195.9	81.2	76.4	52.3	31.1	20.5	11.2	64.3	1920	59.6
1920-1921	27.6	29.6	53.3	80.6	55.2	75.2	198.0	67.0	37.7	41.9	39.5	82.0	56.8	1921	60.8
1921-1922	19.0	20.6	105.5	59.2	67.4	163.5	68.6	181.1	23.3	23.0	17.0	11.6	66.5	1922	61.5
1922-1923	56.8	89.4	44.0	61.4	135.2	122.5	93.1	92.3	70.5	11.6	9.6	12.9	57.6	1923	59.5
1923-1924	72.4	35.4	89.6	100.7	64.4	71.6	122.0	74.9	22.0	9.4	22.9	10.8	44.7	1924	42.8
1924-1925	233.3	20.2	40.8	20.6	164.4	117.4	122.0	86.3	35.6	10.5	10.6	9.0	49.1	1925	48.5
1925-1926	14.1	30.6	62.7	68.4	51.0	114.4	66.8	59.5	42.8	8.0	18.6	24.5	46.8	1926	57.5
1926-1927	15.1	38.7	58.9	112.1	79.8	105.9	58.6	141.4	29.4	21.3	21.3	16.7	57.2	1927	50.5
1927-1928	37.2	73.0	83.5	95.3	87.0	105.9	80.6	102.6	21.1	2.9	2.4	6.7	64.0	1928	57.3
1928-1929	30.3	46.4	62.0	77.3	74.6	141.8	90.6	32.1	13.8	2.7	1.3	8.1	34.6	1929	33.2
1929-1930	2.3	17.3	28.4	68.5	82.6	84.8	95.5	74.0	47.1	18.4	14.3	5.1	45.0	1930	48.8
1930-1931	3.6	13.5	26.8	43.9	82.1	93.4	95.5	80.6	14.2	2.7	5.4	27.8	64.2	1931	51.4
1931-1932	3.2	14.6	28.8	54.4	90.8	66.6	156.3	52.5	38.9	8.5	6.9	20.1	53.8	1932	56.4
1932-1933	52.5	88.2	108.1	110.9	70.9	95.9	111.3	72.4	30.7	3.6	3.6	19.0	59.3	1933	52.8
1933-1934	27.9	55.4	48.9	97.7	26.0	136.0	116.0	85.1	34.8	15.1	0.6	10.6	50.3	1934	54.8
1934-1935	40.9	43.0	90.4	66.0	91.6	218.6	85.1	75.3	22.0	1.1	0.6	7.2	59.3	1935	52.8
1935-1936	-12.5	18.6	85.2	44.7	46.4	123.6	117.1	80.3	14.8	1.1	0.6	10.6	50.3	1936	54.8
1936-1937	23.0	34.4	61.6	91.4	113.1	81.7	69.9	82.6	22.0	1.3	9.3	13.6	53.1	1937	53.7
1937-1938	20.2	51.5	112.5	73.4	102.7	110.7	88.1	44.1	33.1	60.3	42.6	24.6	56.3	1938	58.4
1938-1939	46.2	68.6	99.4	68.5	81.4	89.4	108.2	55.0	88.0	19.0	7.5	2.6	59.1	1939	48.3
1939-1940	10.9	96.4	45.3	49.0	57.4	130.3	114.8	36.7	67.3	19.0	2.0	1.5	52.1	1940	50.8
1940-1941	-8.6	15.5	22.9	37.8	77.0	83.5	196.0	57.8	15.2	16.0	6.0	88.8	38.2	1941	33.8
1941-1942	10.6	53.7	71.4	68.8	177.4	119.6	68.7	77.8	18.1	9.2	7.5	205.0	35.0	1942	43.8
1942-1943	9.4	27.7	34.4	40.8	49.2	64.2	83.9	80.0	11.3	0.6	7.4	10.9	34.5	1943	48.8
1943-1944	18.4	37.4	82.0	84.3	44.6	263.4	54.0	63.4	18.1	0.6	7.4	13.7	30.1	1944	38.1
1944-1945	2.7	20.8	60.6	102.9	78.2	250.6	60.3	50.8	49.8	3.5	3.9	15.2	50.5	1945	46.0
1945-1946	102.1	22.7	30.5	72.5	58.5	104.2	61.3	84.9	26.6	0	20.5	7.7	45.7	1946	49.0
1946-1947	7.0	45.8	35.5	21.7	122.6	168.1	94.7	56.1	74.3	15.0	4.1	7.7	45.0	1947	42.9
1947-1948	7.2	30.1	45.2	81.5	89.0	118.2	68.8	44.2	20.0	21.0	0.3	2.6	41.7	1948	52.2
1948-1949	1.8	25.6	56.7	65.4	110.5	73.8	108.3	61.7	34.1	-6.8	4.4	1.0	42.4	1949	42.5
1949-1950	2.2	16.4	45.2	55.2	52.4	104.3	81.8	62.7	20.0	-29.2	2.3	-2.9	50.7	1950	54.5
1950-1951	8.2	47.9	77.8	86.9	68.6	121.5	67.3	51.9	44.6	4.2	7.2	9.0	50.9	1951	44.8
1951-1952	-10.3	12.2	27.4	72.8	84.2	81.6	74.7	75.6	21.3	1.6	10.2	4.7	51.4	1952	53.0
1952-1953	42.5	64.6	85.4	246.0	72.8	102.2	66.3	91.0	12.0	-0.4	10.2	51.9	47.1	1953	56.0
1953-1954	62.9	122.7	208.3	60.7	93.2	57.8	171.1	81.8	19.6	8.9	32.7	26.3	56.7	1954	60.8
1954-1955	7.8	22.4	53.1	83.1	85.4	83.5	90.6	37.4	45.7	0.8	14.1	1.2	67.6	1955	52.7
1955-1956	2.0	9.5	32.1	77.9	59.8	110.4	91.3	101.0	25.0	42.7	24.1	13.9	46.2	1956	39.3
1956-1957	53.5	61.1	102.8	64.5	82.2	82.2	102.5	126.1	30.9	12.1	18.8	21.4	49.7	1957	60.5
1957-1958	14.0	40.7	78.6	91.6	90.1	96.3	131.0	48.8	22.2	31.0	3.1	40.4	57.8	1958	48.8
1958-1959	27.4	73.8	56.8	68.2	105.7	116.4	80.2	64.2	57.8	8.3	5.0	19.0	49.6	1959	53.8
1959-1960	23.9	40.3	62.1	68.7	74.5	105.6	91.6	68.9	33.5	17.4	12.5	18.1	51.8	1960	55.3
1960-1961	233.3	331.2	208.3	246.0	177.4	263.4	198.0	181.1	74.3	60.3	82.0	82.0	68.1	1961	66.4
Average	-12.5	9.5	22.8	20.6	25.3	57.8	58.6	32.1	-25.0	-42.7	-24.1	-205.0	30.1	Min.	32.8
Maximum														Max.	66.4

(e) Estimated.

TABLE 5
SCITUATE WATERSHED
 (92.8 Square Miles)

STATISTICS OF STORAGE FOR YEAR ENDED SEPTEMBER 30, 1961

1960-1961	1 REGULATING RESERVOIR		2 WESTCONAUG RESERVOIR		3 BARDEN RESERVOIR		4 MOSWANSICUT RESERVOIR		5 PONGANSET RESERVOIR		6 SCITUATE RESERVOIR		TOTAL 1-6	
	Elev. M. G.	Avail. Storage M. G.	Elev. M. G.	Avail. Storage M. G.	Elev. M. G.	Avail. Storage M. G.	Elev. M. G.	Avail. Storage M. G.	Elev. M. G.	Avail. Storage M. G.	Elev. M. G.	Avail. Storage M. G.	% of Total Storage M. G.	% of Total Storage M. G.
Oct.	285.58	437	452.42	358	345.30	869	301.95	720	633.55	731	279.00	31,300	34.405	86.6
Nov.	285.62	433	451.77	325	345.34	872	301.95	720	633.83	753	278.37	30,670	33,773	85.0
Dec.	285.63	433	452.67	370	345.35	873	302.00	723	633.66	740	279.44	31,784	34,925	87.9
Jan.	285.65	433	453.72	427	345.30	869	303.02	727	633.77	748	280.03	32,410	35,614	89.6
Feb.	285.60	429	454.09	448	345.25	865	301.97	722	633.50	727	278.86	31,160	34,351	86.4
Mar.	285.75	441	454.62	478	345.65	897	302.15	741	634.15	778	281.01	33,401	36,736	92.4
Apr.	285.70	437	453.87	436	345.25	865	302.10	735	633.85	755	282.99	35,519	38,747	97.5
May	285.70	437	454.17	453	345.35	873	302.03	728	633.93	761	284.92	37,630	40,882	102.9
June	285.70	437	454.67	481	345.50	885	302.07	732	633.85	755	285.35	38,105	41,395	104.1
July	285.55	425	454.27	458	345.21	862	301.93	718	633.32	714	283.23	35,776	38,953	98.0
Aug.	285.50	421	454.15	452	344.90	837	301.90	715	633.13	699	281.41	33,829	36,933	93.0
Sept.	285.50	421	454.17	453	345.11	854	301.94	719	633.13	699	279.11	31,421	34,567	87.0
Max. For Year	286.20	479	455.02	501	346.45	962	302.25	751	634.15	778	285.60	38,385	41,645	104.8
Min. For Year	285.08	388	451.67	320	343.90	759	301.60	685	632.95	685	277.52	29,820	33,094	83.3
1. Regulating Reservoir—Spillway Elev.	285.50	Total Storage	428 M.G.;	Dead Storage	7 M.G.;	Total Available Storage	421 M.G.							
2. Westconaug	434.17	"	453	"	453	"	0	"	0	"	"	"	453	"
3. Barden	345.10	"	853	"	853	"	0	"	0	"	"	"	853	"
4. Moswansicut	301.90	"	1,781	"	1,781	"	1,066	"	1,066	"	"	"	715	"
5. Ponganset	633.05	"	742	"	742	"	49	"	49	"	"	"	693	"
Total 1-5	Reservoir—Spillway Elev.	284.01	Total Storage	4,257 M.G.;	Dead Storage	1,122 M.G.;	Total Available Storage	*3,135 M.G.						
6. Scituate			"	37,011	"	400	400	"	400	"	"	"	36,611	"
Total 1-6			Total Storage	41,268 M.G.;	Dead Storage	1,522 M.G.;	Total Available Storage	†39,746 M.G.						

Note: Elevations shown are in feet above mean high water in Providence Harbor.
 Statistics shown are for the first day (7 A.M.) of the month indicated.

TABLE 6
SCITUATE WATERSHED
(92.8 Square Miles)

DRAFT AND YIELD FOR THE YEAR ENDED SEPTEMBER 30, 1961

1960-1961	DRAFT FROM SCITUATE RESERVOIR Million Gallons				WATERSHED YIELD Million Gallons		
	To River Below Gainer Dam		To Water Purification Works	Total		For Month	Avg. per Day
	Over Spillway	Through Gatehouse		For Month	Avg. Per Day		
Oct.	0	732.80	732.80	1,479.23	2,212.03	1,580.03	50.97
Nov.	0	826.38	826.38	1,419.89	2,246.47	3,398.47	113.28
Dec.	0	1,779.85	1,779.85	1,431.03	3,210.88	3,899.88	125.80
Jan.	0	3,412.21	3,412.21	1,421.76	4,833.97	3,570.97	115.19
Feb.	0	2,190.66	2,190.66	1,358.86	3,549.52	5,934.52	211.95
Mar.	0	4,522.31	4,522.31	1,482.49	6,004.80	8,015.80	258.57
Apr.	93.08	4,103.30	4,196.38	1,333.70	5,530.08	7,665.08	255.50
May	548.60	3,331.10	3,879.70	1,468.07	5,347.77	5,860.77	189.06
June	95.98	2,721.72	2,817.70	1,714.46	4,532.16	2,090.16	69.67
July	0	647.87	647.87	1,748.23	2,396.10	396.10	12.78
Aug.	0	918.03	918.03	1,791.62	2,709.65	323.65	10.44
Sept.	0	1,045.67	1,045.67	1,650.74	2,696.41	3,701.41	123.38
For Yr.	737.66†	26,232.10	26,969.76	18,300.08	45,269.84	46,436.84	127.22
							111.14

†Includes Flashboard Leakage.

TABLE 7
SCITUATE WATERSHED — REFORESTATION
NUMBER AND KINDS OF TREES PLANTED IN VARIOUS YEARS

Planted During Calendar Year	Balsam Fir	Red Pine	White Pine	Douglas Fir	Austrian Pine	Scotch Pine	Jack Pine	White Spruce	Norway Spruce	Hemlock	Larch	Total Number Planted Yearly
1926	0	160,000	40,000	0	0	0	0	0	0	0	0	200,000
1927	0	60,000	150,000	0	0	0	0	0	0	0	0	210,000
1928	0	10,000	10,000	0	0	0	0	0	0	0	0	20,000
1929	0	10,000	75,000	0	0	0	0	0	0	0	0	85,000
1930	0	40,000	40,000	0	0	0	0	0	0	0	0	80,000
1931	0	40,000	50,000	0	0	0	0	9,000	0	0	0	99,000
1932	0	40,000	40,000	0	0	0	0	20,000	0	0	0	100,000
1933	0	0	0	0	0	0	0	0	0	0	0	0
1934 & 1935	0	755,000	255,000	0	36,000	136,000	4,000	505,000	204,000	3,000	0	1,898,000
1936	0	453,700	111,000	0	14,400	0	0	20,000	15,000	26,000	0	640,100
1937	0	481,100	0	0	0	0	0	213,200	0	0	0	694,300
1938	0	225,000	21,693	0	0	0	0	0	0	0	0	250,693
1939	0	8,000	761,000	0	0	0	50,000	0	0	0	0	819,000
1940	0	267,387	618,828	0	45,915	0	67,750	0	0	0	0	992,881
1941	0	51,000	295,650	0	0	0	0	34,350	0	0	0	381,000
1942	0	0	308,120	0	0	0	0	0	0	0	0	308,120
1943	0	0	0	0	0	0	0	0	0	0	0	0
1944	0	0	0	0	0	0	0	0	0	0	0	0
1945	0	0	0	0	0	0	0	0	0	0	0	0
1946	0	0	0	0	0	0	0	0	0	0	0	0
1947	0	0	0	0	0	0	0	0	0	0	0	0
1948	0	0	0	0	0	0	0	0	0	0	0	0
1949	0	0	0	0	0	0	0	0	0	0	0	0
1950	0	0	0	0	0	0	0	0	0	0	0	0
1951	0	0	1,500	12,000	0	0	0	0	0	0	0	13,500
1952	0	20,000	0	0	0	0	0	10,000	0	0	10,000	40,000
1953	0	10,000	0	0	0	0	0	6,000	0	0	0	16,000
1954	2,000	0	0	2,000	0	0	0	0	0	0	6,000	10,000
1955	0	0	5,000	0	0	0	0	0	0	0	5,000	10,000
1956	0	0	5,000	0	0	0	0	0	0	0	0	9,500
1957	0	0	6,000	0	4,500	0	0	0	0	0	0	6,000
1958	0	2,700	2,000	0	0	0	0	0	0	0	0	4,700
1959	0	0	0	0	0	0	0	0	0	0	0	0
1960	140	540	6,874	784	405	0	0	3,401	49	0	3,461	15,654
1961	0	0	2,300	144	0	0	0	0	0	2,000	0	4,444
TOTALS	2,140	2,638,427	2,804,965	14,928	101,221	136,000	121,750	820,951	219,049	31,000	24,461	6,914,892

TABLE 8
GAINER DAM HYDRO-ELECTRIC PLANT*
POWER STATISTICS ON THE BASIS OF THE "CONTRACT YEAR" WITH THE NARRAGANSETT ELECTRIC COMPANY

Contract Year	KWH Generated at Gainer Dam	KWH Used at Gainer Dam and Water Purification Works	Net KWH Delivered to Narrag. Elec. Co.	Payment Received
(Period June 20-30, 1930)...	87,000	6,470	75,100	\$300.40
July 1930—June 1931.....	3,023,000	152,940	2,758,340	20,000.00
July 1931—June 1932.....	4,201,500	158,070	3,980,570	19,600.00
July 1932—June 1933.....	7,024,900	155,210	6,697,656	26,790.62
July 1933—June 1934.....	5,080,900	152,420	4,837,371	19,349.48
July 1934—June 1935.....	7,102,900	174,710	6,756,101	27,024.40
July 1935—June 1936.....	5,761,200	173,530	5,394,176	21,576.70
July 1936—June 1937.....	5,626,000	174,110	5,262,807	21,051.23
July 1937—June 1938.....	6,438,300	156,710	6,069,927	24,279.71
July 1938—June 1939.....	8,915,000	159,860	8,457,980	33,831.92
July 1939—June 1940.....	4,681,100	231,850	4,329,115	17,316.46
July 1940—June 1941.....	3,291,200	185,540	2,982,991	16,000.00
July 1941—June 1942.....	2,585,300	194,250	2,322,916	15,600.00
July 1942—June 1943.....	4,655,800	170,520	4,372,359	17,489.44
July 1943—June 1944.....	2,290,100	183,250	2,096,811	14,597.25
July 1944—June 1945.....	4,146,200	187,080	3,879,622	15,518.49
July 1945—June 1946.....	4,754,100	200,200	4,460,596	17,343.70
July 1946—June 1947.....	3,494,400	251,270	3,224,049	13,600.00
July 1947—June 1948.....	5,576,900	249,940	5,313,209	21,252.84
July 1948—June 1949.....	3,790,500	264,160	3,521,404	14,085.62
July 1949—June 1950.....	1,972,200	303,460	1,548,000	9,288.00
July 1950—June 1951.....	4,965,900	322,220	4,476,900	26,861.40
July 1951—June 1952.....	6,381,400	329,080	5,836,700	35,020.20
July 1952—June 1953.....	4,993,400	351,080	4,429,900	26,579.40
July 1953—June 1954.....	3,945,700	389,050	3,389,000	20,334.00
July 1954—June 1955.....	6,776,900	422,250	6,111,000	36,666.00
July 1955—June 1956.....	9,521,700	480,300	8,747,900	52,487.40
July 1956—June 1957.....	2,195,400	466,480	1,608,100	9,648.60
July 1957—June 1958.....	4,141,000	541,760	3,432,900	**20,597.40
July 1958—June 1959.....	4,987,600	504,310	4,297,300	25,783.80
July 1959—June 1960.....	5,754,000	515,280	5,078,000	30,468.00
July 1960—June 1961.....	4,912,500	583,050	4,159,400	24,956.40

*1875 KVA 3 Phase, 60 Cycles, 2300 Volts, 80 Ft. Head Turbo-Generator.
**Involves net exchange for portion of previous year.

TABLE 9
WATER PURIFICATION WORKS
OPERATING STATISTICS FOR YEAR ENDED SEPTEMBER 30, 1961

1960-1961	Influent Aerator Hours Operated	Plant Influent Mil. Gals.		Water Filtered Mil. Gals.		Wash Water Mil. Gals.		Plant Effluent Mil. Gals.		Plant Effluent Flow Hours	Number of Filters In Operation			Avg. Rate of Filtration per G.D.	
		Total	Avg. Per Day	Total	Avg. Per Day	Total	Avg. Per Day	Total	Avg. Per Day		Max.	Min.	Avg.		
Oct.	745.0	1,479.23	47.72	1,317.645	42.505	9.767	0.315	1,307.878	42.190	745.0	12.0	3.5	7.4	5.72	
Nov.	770.0	1,419.89	47.33	1,286.496	42.883	9.666	0.322	1,276.830	42.561	720.0	14.0	5.0	9.0	4.76	
Dec.	744.0	1,431.03	46.16	1,281.399	41.335	10.675	0.344	1,270.724	40.991	744.0	13.0	5.0	8.8	4.71	
Jan.	744.0	1,421.76	45.86	1,288.410	41.562	10.594	0.342	1,277.816	41.200	744.0	13.0	5.0	8.8	4.71	
Feb.	672.0	1,358.86	48.53	1,239.464	43.909	9.294	0.332	1,220.170	43.578	672.0	13.0	5.0	9.3	4.74	
Mar.	737.0	1,482.49	47.82	1,318.377	42.358	8.042	0.299	1,310.335	42.269	744.0	12.5	6.0	9.0	4.74	
Apr.	719.0	1,333.70	44.46	1,237.134	41.238	7.387	0.246	1,229.747	40.992	719.0	13.0	5.0	8.7	4.74	
May	744.0	1,468.07	47.36	1,341.177	43.264	9.187	0.296	1,331.990	42.967	744.0	13.0	4.0	8.3	5.21	
June	707.5	1,714.46	57.15	1,561.355	52.045	12.363	0.412	1,548.992	51.653	720.0	13.5	3.0	7.8	6.68	
July	744.0	1,748.23	56.39	1,593.047	51.389	9.120	0.294	1,583.927	51.094	744.0	14.0	2.0	7.3	7.07	
Aug.	744.0	1,791.62	57.79	1,646.393	53.109	10.082	0.305	1,636.311	52.784	744.0	14.0	2.0	7.5	7.10	
Sept.	720.0	1,650.74	55.02	1,510.425	50.348	9.158	0.305	1,501.267	50.042	720.0	14.0	3.0	7.4	6.78	
Totals	8,740.5	18,300.08	.....	16,611.322	.....	115.335	.....	16,495.987	.....	8,760.0	.....	.....	.....	.....
Average ...	728.4	50.14	45.510	0.316	45.194	730.0	8.3	5.51

Raw water treated with Ferri-Floc before Influent Aeration.
 Quicklime added to Ferri-Floc treated water in conduit to tangential mixer.
 Chlorine added to water after filtration.
 Sodium Silicofluoride added to water after filtration.
 Raw water drawn from lower intake at Gainer Memorial Dam all year.

Table 9 (Continued)
WATER PURIFICATION WORKS
OPERATING STATISTICS FOR YEAR ENDED SEPTEMBER 30, 1961

1960-1961	Number of Filters Washed			Ferri-Floc Used			Quicklime Used			Chlorine Used			Sodium Silicofluoride Used			Fuel Oil Used for Heating—Gals.	
	Total	Avg. per Day	No. of Filters	Lbs.	Avg. per Day	Gr. per Gal.	Lbs.	Avg. per Day	Gr. per Gal.	Lbs.	Avg. per Day	Parts per Mil.	Lbs.	Avg. per Day	Parts per Mil.*	No. 2	No. 6
Oct.....	68	2.2	80.04	118,680	3,828	0.56	4,343	4,420	0.65	4,343	140	0.41	19,833	640	1.10	500	4,589
Nov.....	72	2.4	86.00	106,733	3,558	0.53	4,212	3,958	0.59	4,212	140	0.40	19,252	642	1.09	35	9,264
Dec.....	95	3.1	71.84	103,980	3,353	0.31	4,189	3,817	0.58	4,189	135	0.40	18,915	610	1.09	11	10,785
Jan.....	93	3.0	71.80	134,412	4,336	0.66	4,242	4,108	0.63	4,242	137	0.41	19,057	615	1.09	0	14,486
Feb.....	83	3.0	80.59	138,077	4,931	0.71	4,063	4,699	0.68	4,063	145	0.41	17,816	636	1.08	22	12,279
Mar.....	70	2.3	97.49	138,193	4,458	0.65	4,354	4,588	0.66	4,354	140	0.41	19,059	615	1.08	67	9,199
Apr.....	63	2.1	98.83	115,911	3,864	0.61	4,090	4,268	0.67	4,090	136	0.41	18,633	623	1.11	869	482
May.....	69	2.2	91.92	131,433	4,240	0.63	4,401	4,471	0.66	4,401	142	0.40	20,407	658	1.14	721	0
June.....	87	2.9	63.76	173,639	5,788	0.71	5,111	5,675	0.70	5,111	170	0.40	19,929	664	0.94	650	0
July.....	64	2.1	83.68	176,799	5,703	0.71	5,170	5,588	0.69	5,170	167	0.40	20,105	649	0.93	850	0
Aug.....	70	2.3	79.04	157,529	5,082	0.62	5,339	5,655	0.69	5,339	172	0.40	21,045	679	0.93	843	0
Sept.....	64	2.1	84.27	138,508	4,617	0.59	4,861	5,738	0.73	4,861	162	0.39	19,621	634	0.94	819	0
Totals.....	898	.....	.....	1,633,844	.....	.....	54,375	.....	.....	54,375	.....	.....	233,672	.....	.....	5,387	61,084
Average.....	.....	2.5	81.43	.....	4,476	0.63	.....	4,743	0.66	.....	149	0.40	.....	640	1.04	449	5,090

Total filter hours for year, 72,376.44; average per day, 198.29.
Average quantity of water filtered per filter per run, 18.69 m. g.
*Dosage expressed as p.p.m. of Fluoride ion.

TABLE 10
WATER PURIFICATION WORKS
CHEMICALS USED DURING THE FISCAL YEAR ENDED
SEPTEMBER 30, 1961

Chemicals	Pounds of Chemicals Used		Total Gallons of Water Treated	Cost of Chemicals	Pounds of Chemicals Used per 1,000,000 Gals. of Water Treated (Avg.)	Cost of Chemicals Per 1,000,000 Gals. of Water Treated
	Total	Lbs. per Day (Avg.)				
Ferri-Floc	1,633,844	4,476	18,288,710,000	\$44,438.43	89.34	\$2.43
Quicklime	1,731,253	4,743	18,283,350,000	18,483.54	94.69	1.01
Chlorine	54,375	149	16,161,489,000	4,202.77	3.36	0.26
Sod. Silicofluoride	233,672	640	16,060,513,000	16,285.17	14.55	1.01
Totals	3,653,144	.....	.....	\$83,409.91	.....	\$4.71

Price of Ferri-Floc—From Oct. 1, 1960 to Dec. 6, 1960—\$55.05 per ton; from Dec. 7, 1960 to Apr. 4, 1961—\$55.25 per ton; from Apr. 5 to Aug. 2, 1961—\$53.05 per ton; from Aug. 3 to Sept. 10, 1961 (in bag form)—\$55.26 per ton; from Sept. 11 to Sept. 30, 1961—\$53.05 per ton.

Price of Quicklime—From Oct. 1, 1960 to May 23, 1961—\$20.92 per ton; from May 24 to June 25, 1961—\$21.02 per ton; from June 26 to July 23, 1961 (in bag form)—\$26.75 per ton; from July 24 to Sept. 30, 1961—\$21.02 per ton.

Price of Chlorine—From Oct. 1, 1960 to Sept. 17, 1961—\$0.0775 per pound; from Sept. 18 to 30, 1961—\$0.0675 per pound.

Price of Sodium Silicofluoride—From Oct. 1, 1960 to July 31, 1961—\$139.39 per ton; from Aug. 1 to Sept. 30, 1961—\$139.35 per ton.

TABLE 11
WATER PURIFICATION WORKS
***CHEMICAL AND PHYSICAL CHARACTERISTICS OF WATER IN**
PROCESS OF FILTRATION
YEAR ENDED SEPTEMBER 30, 1961

Monthly Averages	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
Alkalinity													
Raw	5.1	5.1	4.9	4.7	4.8	5.0	4.5	4.4	4.5	4.3	4.6	5.0	4.7
**Effluent	18.7	16.9	16.5	15.9	16.6	17.0	17.1	16.8	16.9	16.7	16.9	19.0	17.1
Tap	16.5	15.1	14.4	13.9	14.7	14.9	15.1	15.0	15.2	15.0	15.1	17.4	15.2
Hardness													
Raw	10	10	10	10	10	10	9	9	10	9	10	10	10
**Effluent	29	27	27	27	29	29	28	28	29	29	28	30	28
Tap	29	27	27	27	29	29	28	28	29	29	29	30	28
Hydrogen Ion Concentration													
Raw	6.3	6.6	6.5	6.4	6.1	6.1	6.3	6.3	6.1	6.0	6.0	6.0	6.2
Aerated Influent	4.4	4.4	4.4	4.2	4.2	4.2	4.2	4.2	4.1	4.1	4.3	4.3	4.3
Treated	10.4	10.3	10.5	10.4	10.4	10.4	10.5	10.4	10.3	10.3	10.3	10.4	10.4
Settled	10.3	10.3	10.4	10.4	10.3	10.3	10.3	10.3	10.2	10.2	10.2	10.2	10.3
Filtered	10.3	10.3	10.4	10.4	10.3	10.3	10.3	10.3	10.2	10.2	10.2	10.2	10.3
**Effluent	10.2	10.3	10.4	10.4	10.3	10.3	10.3	10.3	10.2	10.2	10.2	10.2	10.3
Tap	10.1	10.2	10.3	10.3	10.2	10.2	10.2	10.2	10.3	10.1	10.1	10.2	10.2
Free CO₂													
Raw	4.9	1.6	1.5	1.9	2.9	2.9	2.0	1.8	3.0	4.0	5.2	7.0	3.2
Aerated Influent	6.4	5.6	5.7	6.9	7.3	7.2	6.0	5.8	7.7	7.6	7.0	7.6	6.7
Phenolphthalein Alkalinity													
Treated	12.0	11.0	10.7	10.5	11.2	11.3	11.5	11.7	11.0	10.8	11.1	12.4	11.3
Settled	11.4	10.6	10.5	10.0	10.4	10.4	10.7	10.4	10.1	9.8	9.9	11.3	10.5
Filtered	11.3	10.4	10.4	9.9	10.3	10.4	10.6	10.4	10.1	9.9	9.8	11.3	10.4
**Effluent	11.3	10.4	10.3	9.9	10.3	10.5	10.6	10.3	10.2	10.0	9.9	11.4	10.4
Tap	8.3	7.6	7.4	7.1	7.3	7.4	7.6	7.5	7.7	7.7	7.5	8.8	7.7
Color													
Raw	14	10	10	11	13	11	12	11	11	10	10	11	11
**Effluent	5	5	5	5	6	5	6	5	5	6	6	5	5
Tap	5	5	5	5	5	5	5	5	5	5	5	5	5
Turbidity													
Raw	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Settled	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
**Effluent	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Iron													
Raw	0.26	0.08	0.07	0.07	0.07	0.05	0.05	0.05	0.06	0.07	0.09	0.14	0.09
Settled .....	.19	.25	.37	.49	.48	.31	.26	.24	.22	.24	.29	.24	.30
**Effluent .....	.00	.00	.00	.01	.01	.00	.01	.00	.01	.01	.01	.00	.01
Tap .....	.01	.01	.02	.01	.02	.01	.01	.01	.01	.01	.01	.02	.01
Manganese													
Raw	0.06	0.01	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.02	0.08	0.02
Settled .....	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00
**Effluent .....	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Tap .....	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Fluoride													
Raw	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.16	0.15	0.15	0.14	0.14	0.15
**Effluent	0.15	0.15	0.14	0.15	0.15	0.15	0.15	0.14	0.14	0.13	0.11	0.11	0.14
Tap	1.18	1.20	1.18	1.17	1.17	1.16	1.17	1.15	1.01	1.01	1.01	1.02	1.12
Temperature (°F.)													
Air (av. of daily max.)	64	56	38	32	40	46	53	64	77	79	81	78	59
Air (av. of daily min.)	44	36	17	11	18	26	36	45	57	61	57	57	39
Raw water	56	51	40	35	36	37	41	48	51	52	53	55	46
Water on filters	55	48	37	33	35	37	43	51	57	60	58	60	48
Tap	59	54	44	39	39	40	45	53	57	59	60	60	51

*Parts per million, except pH and Temperature.
 **Before treatment with chlorine and sodium silicofluoride.

TABLE 12
WATER PURIFICATION WORKS
***CHEMICAL AND PHYSICAL CHARACTERISTICS OF WATER IN**
VARIOUS BROOKS AND RESERVOIRS ON SCITUATE WATERSHED
YEAR ENDED SEPTEMBER 30, 1961

Monthly Analyses	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
Color													
Ponaganset Reservoir	10	11	5	6	5	5	3	5	5	6	12	7	7
Coventry Brook	90	20	20	17	23	17	22	37	35	16	22	35	30
Wilbur Brook	85	40	32	32	37	27	42	78	76	65	55	70	53
Westconnaug Res.	15	10	11	11	12	13	15	18	17	18	30	12	15
Barden Reservoir	35	35	23	23	19	14	22	43	25	56	27	27	29
Cork Brook	45	40	10	11	18	12	18	28	28	15	16	20	22
Rush Brook	45	30	15	21	16	15	25	38	60	35	48	38	32
Huntinghouse Brook	40	18	15	14	17	12	18	27	28	16	18	25	21
Harrisdale Brook	20	17	20	16	20	12	17	26	22	17	12	20	18
Blanchard Brook	180	104	76	62	42	33	74	128	260	300	230	320	151
Moswansicut Pond	14	12	20	15	17	17	18	16	16	14	10	11	15
Regulating Reservoir	16	18	23	16	18	11	19	25	17	15	20	15	18
Quonapaug Brook	150	54	60	60	38	37	64	112	200	225	86	140	102
Hemlock Brook	26	37	35	32	28	22	30	66	28	20	18	45	32
Betty Pond Stream	20	15	15	13	14	8	9	10	10	15	20	20	14
Spruce Brook	100	32	27	22	30	18	23	54	60	38	38	70	43
Brandy Brook	20	55	70	38	46	30	38	90	75	42	64	80	54
Moswansicut—South	70	15	25	11	21	14	14	23	18	20	48	10	24
Windsor Brook	90	20	16	15	20	13	20	33	30	18	18	25	27
Paine Pond	11	25	32	14	20	12	17	23	20	12	3	27	18
Unnamed Brook—A.	90	40	40	27	33	30	42	80	70	**	45	45	49
Unnamed Brook—B.	60	10	8	8	12	10	11	14	40	**	**	15	19
Turbidity													
Ponaganset Reservoir	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.1	0.2	0.2	0.4	0.2	0.2
Coventry Brook	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.2	0.1
Wilbur Brook	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.3	0.1	0.2	0.2
Westconnaug Res.	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2
Barden Reservoir	0.1	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.1	0.2
Cork Brook	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.1	0.2
Rush Brook	0.1	0.2	0.2	0.3	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.1
Huntinghouse Brook	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.2
Harrisdale Brook	0.1	0.2	0.2	0.3	0.2	0.2	0.3	0.1	0.1	0.2	0.1	0.3	0.2
Blanchard Brook	0.1	0.2	0.2	0.4	0.2	0.2	0.3	0.1	0.1	0.2	0.1	0.2	0.2
Moswansicut Pond	0.1	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.1	0.1	0.2
Regulating Reservoir	0.1	0.2	0.2	0.2	0.3	0.2	0.3	0.1	0.2	0.3	0.1	0.1	0.2
Quonapaug Brook	0.1	0.2	0.1	0.2	0.1	0.1	0.4	0.1	0.2	0.3	0.1	0.1	0.2
Hemlock Brook	0.1	0.2	0.5	0.1	0.2	0.1	0.3	0.2	0.2	0.2	0.2	0.3	0.2
Betty Pond Stream	0.1	0.3	1.9	0.2	0.6	0.1	0.3	0.2	0.1	0.2	0.4	0.3	0.4
Spruce Brook	0.1	0.2	0.1	0.2	0.2	0.2	0.3	0.2	0.1	0.3	0.2	0.4	0.2
Brandy Brook	0.4	0.4	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.3	0.3
Moswansicut—South	0.2	0.9	0.2	0.4	0.4	0.1	0.2	0.2	0.3	0.3	0.4	0.3	0.3
Windsor Brook	0.1	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.3	0.2
Paine Pond	0.1	0.3	0.3	0.2	0.3	0.2	0.3	0.2	0.4	0.3	0.2	0.3	0.3
Unnamed Brook—A.	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.1	0.1	**	0.2	0.3	0.2
Unnamed Brook—B.	0.1	0.2	0.3	0.2	0.1	0.1	0.2	0.2	0.2	**	**	0.2	0.2
Iron													
Ponaganset Reservoir	0.11	0.13	0.06	0.10	0.06	0.06	0.01	0.03	0.11	0.20	0.32	0.12	0.11
Coventry Brook	.12	.03	.02	.02	.06	.01	.02	.06	.15	.07	.15	.15	.07
Wilbur Brook	.30	.19	.06	.10	.08	.05	.10	.23	.55	.58	.42	.42	.26
Westconnaug Res.	.18	.07	.04	.10	.03	.05	.06	.12	.17	.18	.18	.05	.10
Barden Reservoir	.30	.22	.10	.13	.05	.04	.06	.18	.18	.75	.38	.09	.21
Cork Brook	.12	.01	.02	.05	.03	.03	.04	.06	.17	.12	.10	.05	.07
Rush Brook	.23	.07	.03	.07	.02	.03	.06	.07	.65	.65	.40	.30	.22
Huntinghouse Brook	.14	.07	.04	.07	.04	.03	.05	.07	.20	.10	.10	.09	.08

*Parts per million.
 **No sample obtained—Brook was dry.
 Note: Unnamed Brook A is just North of Scituate Town Dump. Unnamed Brook B is South-west of the Foster Nike Site.

Table 12 (Continued)

WATER PURIFICATION WORKS
***CHEMICAL AND PHYSICAL CHARACTERISTICS OF WATER IN**
VARIOUS BROOKS AND RESERVOIRS ON SCITUATE WATERSHED
YEAR ENDED SEPTEMBER 30, 1961

Monthly Analyses	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
Iron													
Harrisdale Brook ...	.18	.12	.05	.10	.03	.06	.08	.07	.13	.20	.20	.05	.11
Blanchard Brook ...	.45	.20	.17	.14	.05	.05	.12	.38	1.10	2.00	.90	1.60	.60
Moswansicut Pond ...	.02	.02	.02	.04	.01	.01	.02	.04	.04	.09	.08	.05	.04
Regulating Reservoir.	.16	.08	.03	.06	.04	.03	.05	.10	.15	.18	.58	.05	.13
Quonapaug Brook ...	.50	.28	.12	.10	.05	.04	.08	.28	.78	2.25	.38	.50	.45
Hemlock Brook ...	.12	.10	.20	.05	.04	.02	.05	.12	.20	.23	.25	.18	.13
Betty Pond Stream..	.04	.03	.18	.20	.09	.01	.04	.02	.05	.09	.15	.05	.08
Spruce Brook .....	.20	.05	.02	.06	.02	.03	.05	.07	.18	.18	.13	.18	.10
Brandy Brook .....	.33	.35	.45	.30	.06	.06	.08	.30	.55	.40	.42	.22	.29
Moswansicut—South.	.48	.45	.08	.14	.18	.07	.23	.42	.58	.45	2.00	.05	.43
Windsor Brook .....	.12	.07	.02	.02	.05	.03	.04	.08	.25	.07	.08	.07	.08
Paine Pond .....	.18	.06	.20	.12	.03	.04	.01	.10	.12	.22	.05	.06	.10
Unnamed Brook—A..	.20	.10	.02	.00	.02	.03	.05	.12	.15	**	.12	.18	.09
Unnamed Brook—B..	.05	.04	.01	.00	.01	.02	.02	.03	.12	**	**	.05	.04
Manganese													
Ponaganset Reservoir	0.05	0.08	0.06	0.06	0.09	0.04	0.08	0.08	0.00	0.08	0.06	0.06	0.06
Coventry Brook .....	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00
Wilbur Brook .....	.04	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.02	.01
Westconnaug Res....	.00	.00	.02	.00	.00	.00	.02	.01	.00	.01	.00	.00	.00
Barden Reservoir ...	.00	.00	.02	.00	.00	.00	.01	.00	.00	.08	.00	.00	.01
Cork Brook .....	.02	.02	.00	.00	.00	.01	.00	.02	.08	.00	.00	.04	.02
Rush Brook .....	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.04	.00
Huntinghouse Brook.	.00	.00	.00	.00	.00	.01	.00	.00	.00	.02	.00	.01	.00
Harrisdale Brook ...	.00	.00	.00	.00	.00	.00	.00	.02	.00	.01	.00	.00	.00
Blanchard Brook ...	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00
Moswansicut Pond ...	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.01	.04	.01
Regulating Reservoir.	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Quonapaug Brook ...	.00	.00	.00	.03	.00	.00	.00	.00	.02	.00	.00	.00	.00
Hemlock Brook .....	.00	.00	.02	.00	.00	.00	.00	.04	.00	.00	.01	.04	.01
Betty Pond Stream..	.00	.00	.01	.00	.01	.02	.00	.00	.00	.00	.00	.00	.00
Spruce Brook .....	.02	.00	.00	.00	.00	.00	.00	.00	.....	.00	.00	.00	.00
Brandy Brook .....	.10	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
Moswansicut—South.	.00	.00	.00	.00	.00	.01	.00	.12	.14	.20	.64	.06	.10
Windsor Brook .....	.00	.00	.01	.00	.00	.00	.00	.02	.00	.00	.00	.00	.00
Paine Pond .....	.00	.00	.00	.00	.00	.02	.00	.10	.00	.00	.00	.00	.01
Unnamed Brook—A..	.01	.24	.00	.00	.00	.02	.00	.00	.00	**	.00	.00	.02
Unnamed Brook—B..	.06	.01	.00	.00	.01	.00	.00	.06	.00	**	**	.00	.01
Hydrogen Ion Concentration													
Ponaganset Reservoir	5.2	4.9	4.8	4.7	4.7	4.7	4.8	4.8	5.0	5.6	5.4	5.3	5.0
Coventry Brook	5.9	6.4	5.9	6.1	5.8	6.0	6.1	6.1	6.3	7.1	6.4	6.2	6.2
Wilbur Brook	5.7	6.0	5.5	5.5	5.6	5.8	5.8	5.6	6.1	6.6	5.8	5.5	5.8
Westconnaug Res. ...	6.5	6.5	6.4	6.4	5.8	6.2	6.2	6.0	6.5	7.1	6.7	6.2	6.4
Barden Reservoir ...	6.2	6.2	5.9	5.8	5.4	5.6	5.9	5.7	6.3	6.5	6.4	5.4	5.9
Cork Brook	5.8	5.3	5.8	6.0	5.3	5.7	5.8	5.6	6.3	6.9	6.2	5.6	5.9
Rush Brook	6.2	6.2	6.0	6.2	5.6	6.0	6.1	5.9	6.6	6.6	6.3	6.2	6.2
Huntinghouse Brook.	6.4	6.6	6.0	6.1	5.8	6.3	6.3	6.0	6.7	6.9	6.6	6.3	6.3
Harrisdale Brook ...	6.6	6.7	6.3	6.4	6.2	6.7	6.7	6.3	6.7	7.1	6.9	6.4	6.6
Blanchard Brook ...	5.5	5.5	5.1	5.2	5.3	5.7	5.5	5.2	5.7	5.9	5.5	5.2	5.4
Moswansicut Pond ...	6.7	6.7	6.7	6.5	6.4	6.7	6.6	6.6	6.6	6.8	6.6	6.3	6.6
Regulating Reservoir.	6.8	6.7	6.0	6.2	5.9	6.4	6.5	6.5	6.8	7.0	7.0	6.6	6.5
Quonapaug Brook ...	5.7	5.9	5.4	5.4	5.3	5.7	5.7	5.6	6.2	6.1	5.7	5.5	5.7
Hemlock Brook	6.1	6.0	5.3	5.7	5.5	5.6	5.6	5.4	6.2	6.6	6.2	5.6	5.8
Betty Pond Stream..	6.2	6.2	5.5	5.6	5.3	6.0	5.9	6.0	6.2	6.2	6.7	5.9	6.0

*Parts per million, except Hydrogen Ion Concentration.
 **No sample obtained—Brook was dry.
 Note: Unnamed Brook A is just North of Scituate Town Dump. Unnamed Brook B is South-west of the Foster Nike Site.

Table 12 (Continued)
WATER PURIFICATION WORKS
 *CHEMICAL AND PHYSICAL CHARACTERISTICS OF WATER IN
 VARIOUS BROOKS AND RESERVOIRS ON SCITUATE WATERSHED
 YEAR ENDED SEPTEMBER 30, 1961

Monthly Analyses	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
Hydrogen Ion Concentration													
Spruce Brook	5.9	6.2	5.8	5.7	5.4	5.7	5.7	5.5	6.0	6.6	6.0	5.3	5.8
Brandy Brook	6.4	6.4	6.6	6.5	6.2	6.9	6.4	6.3	6.7	7.5	6.5	6.3	6.6
Moswansicut—South.	7.0	6.4	6.0	6.1	6.2	7.1	6.7	6.5	6.7	6.5	6.7	6.2	6.5
Windsor Brook	5.9	6.7	5.9	6.1	5.7	5.9	6.0	5.9	6.6	7.0	6.8	6.0	6.2
Paine Pond	5.8	5.8	5.9	5.3	5.3	5.5	5.5	5.5	5.5	5.4	4.8	5.4	5.5
Unnamed Brook—A..	6.1	6.2	5.9	6.0	5.9	6.4	6.1	6.0	6.5	**	6.0	5.5	6.1
Unnamed Brook—B..	5.3	5.5	5.4	5.2	5.1	5.4	5.3	5.4	5.6	**	**	5.3	5.4
Free CO₂													
Ponaganset Reservoir	3.0	3.5	3.5	4.0	7.0	6.5	3.5	3.0	3.0	2.5	2.0	2.0	3.6
Coventry Brook	6.5	4.5	4.0	3.5	4.0	3.0	5.0	5.0	4.0	2.0	4.0	6.5	4.3
Wilbur Brook	8.0	11.0	8.0	10.0	3.5	3.5	6.0	7.5	7.5	4.5	9.5	13.0	7.7
Westconnaug Res. ...	2.5	2.5	2.5	2.0	2.5	2.0	3.0	2.0	2.5	1.5	2.5	2.5	2.3
Barden Reservoir ..	3.0	3.5	4.0	4.5	3.0	2.0	3.0	3.5	2.5	3.0	2.5	5.5	3.3
Cork Brook	6.0	20.5	3.5	3.5	4.0	2.5	3.0	4.5	3.0	2.0	4.5	4.0	5.1
Rush Brook	4.0	3.0	3.0	3.5	3.0	2.0	3.5	3.5	5.0	4.0	5.5	6.0	3.8
Huntinghouse Brook.	4.0	4.0	3.5	4.0	3.0	2.5	3.5	5.0	3.0	3.0	3.5	2.0	3.4
Harrisdale Brook ...	4.0	3.0	3.5	5.0	2.5	1.5	2.5	4.5	2.5	2.0	3.0	2.0	3.0
Blanchard Brook ..	10.0	9.0	11.5	13.0	5.0	3.5	8.0	12.0	11.0	13.5	12.5	16.0	10.4
Moswansicut Pond ...	2.0	2.0	1.5	3.0	3.0	1.5	2.0	2.0	2.0	1.5	2.0	2.0	2.0
Regulating Reservoir	1.5	2.5	4.5	4.5	4.0	2.0	2.0	2.5	2.0	1.5	2.0	2.0	2.6
Quonapaug Brook ...	12.0	10.0	14.5	14.0	7.5	5.0	10.0	12.5	13.0	22.0	13.5	11.5	12.1
Hemlock Brook	2.5	4.0	9.0	4.0	4.5	2.5	4.0	7.0	3.5	2.5	2.0	4.5	4.2
Betty Pond Stream..	4.0	4.0	11.5	16.5	11.0	2.0	3.5	3.5	4.0	5.0	4.5	6.0	6.3
Spruce Brook	6.5	4.0	4.0	4.0	5.0	3.5	5.0	5.0	4.5	4.0	4.5	7.0	4.8
Brandy Brook	13.0	3.5	3.0	4.0	2.5	1.5	3.0	4.0	2.5	2.0	3.5	2.5	3.8
Moswansicut—South.	3.0	7.0	20.5	19.0	6.0	2.0	3.5	5.0	9.0	10.5	9.5	10.5	8.8
Windsor Brook	6.5	3.5	3.5	3.5	3.5	2.0	3.0	3.5	3.5	2.5	2.0	2.0	3.3
Paine Pond	5.0	6.5	8.5	18.0	5.5	6.0	5.5	5.0	13.0	4.5	6.5	2.5	7.2
Unnamed Brook—A..	6.5	3.5	6.0	4.5	4.0	3.0	6.0	2.0	4.0	**	6.0	7.0	4.8
Unnamed Brook—B..	10.5	10.0	5.0	6.0	4.0	4.0	8.5	7.5	8.0	**	**	8.5	7.2
Alkalinity													
Ponaganset Reservoir	2.5	1.5	1.0	2.0	2.5	2.5	2.0	3.0	2.0	3.0	2.0	4.0	2.3
Coventry Brook	5.5	5.5	3.5	5.5	4.5	4.0	5.0	6.0	6.0	7.5	7.5	5.5	5.4
Wilbur Brook	4.5	5.5	3.5	5.0	3.5	4.5	4.5	5.0	7.0	8.0	6.5	4.5	5.2
Westconnaug Res. ...	6.0	5.5	4.0	5.5	4.0	4.5	4.5	4.0	6.0	9.5	9.5	4.0	5.6
Barden Reservoir ...	4.0	4.0	4.0	4.5	3.5	3.5	3.5	4.0	5.0	6.0	5.0	5.0	4.3
Cork Brook	4.0	3.5	3.5	4.0	3.5	4.0	4.0	4.0	5.5	6.5	5.0	5.0	4.4
Rush Brook	5.0	4.5	3.5	5.5	4.0	4.5	5.0	4.5	8.0	10.5	6.0	6.0	5.6
Huntinghouse Brook.	5.5	5.5	4.0	6.0	4.5	5.0	5.5	4.5	9.0	14.5	10.0	5.5	6.6
Harrisdale Brook ...	10.5	8.5	6.0	9.0	5.0	7.0	6.5	7.0	11.5	13.5	13.0	6.5	8.7
Blanchard Brook ..	5.0	4.0	2.5	4.0	4.5	4.5	4.0	5.0	5.5	7.5	5.0	4.0	4.6
Moswansicut Pond ...	7.5	6.5	6.5	7.0	7.0	7.0	6.0	7.0	7.5	7.0	7.5	7.0	7.0
Regulating Reservoir	7.5	5.5	3.5	6.5	5.0	6.5	5.5	6.5	7.5	9.0	9.5	8.0	6.7
Quonapaug Brook ...	6.0	5.5	3.0	5.0	4.5	4.5	5.0	6.5	10.0	13.5	7.0	5.5	6.3
Hemlock Brook	4.5	4.0	2.0	4.5	3.0	4.0	4.5	3.5	4.5	5.5	5.5	6.0	4.3
Betty Pond Stream..	4.5	4.5	4.5	6.5	4.0	4.0	4.0	4.5	5.0	5.0	6.0	5.0	4.8
Spruce Brook	5.0	4.0	3.0	4.0	3.5	4.0	3.5	4.0	5.0	6.5	5.5	4.0	4.3
Brandy Brook	11.0	8.0	7.5	9.5	4.5	5.5	5.5	6.5	9.5	11.0	11.0	9.0	8.2
Moswansicut—South.	8.0	14.0	15.5	15.0	9.0	10.5	11.0	12.0	14.0	15.5	18.0	12.0	12.9
Windsor Brook	5.5	4.0	3.0	4.0	4.0	4.0	4.0	3.5	5.5	11.0	6.0	5.5	5.0
Paine Pond	3.0	3.0	2.5	4.5	4.0	4.5	3.5	5.0	5.0	3.5	2.0	4.5	3.8
Unnamed Brook—A..	6.5	6.0	5.0	5.5	5.5	5.5	6.0	7.0	7.5	**	7.0	4.0	6.0
Unnamed Brook—B..	2.5	2.0	2.0	3.5	3.5	4.0	3.0	3.5	4.0	**	**	4.0	3.2

*Parts per million, except Hydrogen Ion Concentration.
 **No sample obtained—Brook was dry.
 Note: Unnamed Brook A is just North of Scituate Town Dump. Unnamed Brook B is Southwest of the Foster Nike Site.

TABLE 13
WATER PURIFICATION WORKS
CHEMICAL AND PHYSICAL CHARACTERISTICS OF WATER IN
VARIOUS PARTS OF THE DISTRIBUTION SYSTEM
YEAR ENDED SEPTEMBER 30, 1961

Monthly Averages	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
Hydrogen Ion Concentration													
Neutaconkanut Reservoir..	10.0	10.0	10.1	10.1	10.0	10.0	10.0	10.0	9.9	9.9	9.9	10.0	10.0
Phenix Ave., Cranston....	10.0	10.0	10.1	10.1	10.0	10.0	10.0	10.0	9.9	9.9	9.9	10.0	10.0
Westminster St., Olneyville	10.0	10.0	10.1	10.1	10.0	10.0	10.0	10.0	9.9	9.9	9.9	10.0	10.0
Budlong Road, Cranston..	10.0	10.0	10.1	10.1	10.0	10.0	10.0	10.0	9.9	9.9	9.9	10.0	10.0
Reservoir Ave., Cranston..	10.0	10.0	10.1	10.1	10.0	10.0	10.0	10.0	9.9	9.9	9.9	10.0	10.0
T. F. Green Airport, War.	10.0	10.0	10.1	10.1	10.0	10.0	10.0	9.9	9.9	9.9	9.9	10.0	10.0
Biltmore Hotel	10.0	10.0	10.1	10.1	10.0	10.0	10.0	10.0	9.9	9.9	9.9	10.0	10.0
Crown Hotel	10.0	10.0	10.1	10.1	10.0	10.0	10.0	9.9	9.9	9.9	9.9	10.0	10.0
State Office Bldg.	10.0	10.0	10.1	10.1	10.0	10.0	10.0	9.9	9.9	9.9	9.9	10.0	10.0
*Longview Reservoir	10.0	10.0	10.1	10.1	9.9	10.0	10.0	9.9	9.9	9.9	9.9	10.0	10.0
10 Westminster St.....	10.0	10.0	10.1	10.1	10.0	10.0	10.0	9.9	9.9	9.9	9.9	10.0	10.0
Phenolphthalein Alkalinity													
Neutaconkanut Reservoir..	8.2	7.7	7.4	7.0	7.3	7.4	7.7	7.5	7.6	7.7	7.5	8.6	7.6
Phenix Ave., Cranston....	8.4	7.6	7.5	7.0	7.3	7.5	7.6	7.5	7.6	7.6	7.4	8.7	7.6
Westminster St., Olneyville	8.4	7.6	7.6	7.0	7.3	7.5	7.7	7.5	7.6	7.6	7.5	8.7	7.7
Budlong Road, Cranston..	8.4	7.6	7.5	7.0	7.4	7.5	7.8	7.5	7.7	7.7	7.6	8.7	7.7
Reservoir Ave., Cranston..	8.4	7.6	7.6	7.1	7.3	7.5	7.8	7.6	7.5	7.6	7.5	8.7	7.7
T. F. Green Airport, War.	8.5	7.5	7.5	7.1	7.3	7.5	7.8	7.6	7.6	7.6	7.6	8.7	7.7
Biltmore Hotel	8.4	7.6	7.6	7.1	7.3	7.4	7.7	7.5	7.6	7.7	7.6	8.7	7.7
Crown Hotel	8.4	7.6	7.6	7.1	7.3	7.5	7.8	7.5	7.6	7.7	7.6	8.7	7.7
State Office Bldg.	8.5	7.6	7.6	7.1	7.4	7.5	7.7	7.5	7.6	7.7	7.6	8.8	7.7
*Longview Reservoir	8.8	8.2	8.0	7.3	7.2	7.6	7.7	7.9	8.0	8.1	8.7	7.9	7.9
10 Westminster St.....	8.5	7.6	7.4	7.1	7.3	7.5	7.7	7.5	7.6	7.7	7.5	8.7	7.7
Methyl Orange Alkalinity													
Neutaconkanut Reservoir..	16.4	15.4	14.5	13.7	14.6	15.0	15.3	15.1	15.2	15.1	15.2	17.3	15.2
Phenix Ave., Cranston....	16.6	15.2	14.6	13.9	14.7	15.0	15.4	15.0	15.1	15.1	15.0	17.4	15.3
Westminster St., Olneyville	16.7	15.1	14.7	13.9	14.7	15.1	15.4	15.1	15.3	15.1	15.2	17.3	15.3
Budlong Road, Cranston..	16.7	15.1	14.6	13.9	14.7	15.2	15.5	15.1	15.3	15.3	15.2	17.4	15.3
Reservoir Ave., Cranston..	16.8	15.3	14.6	13.9	14.7	15.1	15.4	15.0	15.2	15.1	15.2	17.4	15.3
T. F. Green Airport, War.	16.8	15.1	14.7	13.8	14.7	15.1	15.4	15.1	15.2	15.1	15.2	17.4	15.3
Biltmore Hotel	16.7	15.2	14.7	13.8	14.6	15.1	15.4	15.1	15.2	15.1	15.2	17.5	15.3
Crown Hotel	16.8	15.1	14.6	13.9	14.6	15.0	15.5	15.0	15.3	15.1	15.2	17.4	15.3
State Office Bldg.	16.9	15.2	14.6	13.8	14.8	15.2	15.4	15.1	15.3	15.1	15.3	17.6	15.4
*Longview Reservoir	17.6	16.4	15.5	14.8	15.1	15.5	15.6	15.9	15.9	16.1	17.5	16.0	16.0
10 Westminster St.....	16.9	15.3	14.6	14.0	14.7	15.1	15.3	15.0	15.2	15.2	15.2	17.2	15.3
Color													
Neutaconkanut Reservoir..	5	5	5	5	5	5	5	5	5	5	5	5	5
Phenix Ave., Cranston....	5	5	5	5	5	5	5	5	5	5	5	5	5
Westminster St., Olneyville	5	5	5	5	5	5	5	5	5	5	5	5	5
Budlong Road, Cranston..	5	5	5	5	5	5	5	5	5	5	5	5	5
Reservoir Ave., Cranston..	5	5	5	5	5	5	5	5	5	5	5	5	5
T. F. Green Airport, War.	5	5	5	5	6	5	5	5	5	5	5	5	5
Biltmore Hotel	5	5	5	5	5	5	5	5	5	5	5	5	5
Crown Hotel	5	5	5	5	5	5	5	5	5	5	5	5	5
State Office Bldg.	5	5	5	5	5	5	5	5	5	5	5	5	5
*Longview Reservoir	6	5	5	5	5	5	5	5	5	6	6	5	5
10 Westminster St.....	5	5	5	5	5	5	5	5	5	5	5	5	5
Iron													
Neutaconkanut Reservoir..	0.01	0.01	0.01	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.01
Phenix Ave., Cranston....	.01	.01	.01	.01	.02	.01	.01	.00	.01	.01	.02	.01	.01
Westminster St., Olneyville	.01	.01	.01	.01	.02	.01	.00	.00	.01	.01	.02	.01	.01
Budlong Road, Cranston..	.01	.01	.01	.01	.02	.01	.01	.00	.01	.00	.01	.01	.01
Reservoir Ave., Cranston..	.00	.01	.01	.01	.02	.01	.01	.01	.01	.01	.01	.01	.01
T. F. Green Airport, War.	.02	.03	.04	.06	.06	.05	.06	.05	.05	.04	.05	.04	.05
Biltmore Hotel .....	.00	.01	.01	.01	.02	.01	.01	.01	.01	.01	.02	.01	.01
Crown Hotel .....	.01	.01	.01	.02	.03	.01	.01	.01	.01	.02	.02	.00	.01
State Office Bldg. ....	.01	.01	.01	.02	.02	.01	.01	.01	.01	.01	.02	.01	.01
*Longview Reservoir .....	.05	.05	.02	.05	.06	.04	.05	.05	.05	.05	.06	.06	.05
10 Westminster St.....	.01	.02	.02	.02	.02	.01	.01	.01	.01	.01	.02	.01	.01

*Sample obtained at Our Lady of Fatima Hospital.

TABLE 13 (Continued)
WATER PURIFICATION WORKS
CHEMICAL AND PHYSICAL CHARACTERISTICS OF WATER IN
VARIOUS PARTS OF THE DISTRIBUTION SYSTEM
YEAR ENDED SEPTEMBER 30, 1961

Monthly Averages	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
Chlorides													
Neutaconkanut Reservoir..	2.6	3.0	4.1	4.5	4.5	4.5	4.6	4.4	4.1	4.2	4.5	4.5	4.1
Phenix Ave., Cranston...	2.6	2.9	4.1	4.5	4.5	4.5	4.6	4.4	4.0	4.2	4.5	4.5	4.1
Westminster St., Olneyville	2.6	3.0	4.2	4.5	4.5	4.5	4.6	4.4	4.1	4.2	4.5	4.6	4.1
Budlong Road, Cranston..	2.6	3.0	4.2	4.5	4.5	4.5	4.6	4.5	4.2	4.3	4.5	4.5	4.2
Reservoir Ave., Cranston..	2.6	3.0	4.1	4.5	4.5	4.5	4.6	4.5	4.1	4.3	4.5	4.5	4.1
T. F. Green Airport, War.	2.6	3.1	4.1	4.5	4.5	4.5	4.6	4.5	4.1	4.3	4.5	4.5	4.2
Biltmore Hotel	2.6	3.0	4.2	4.5	4.6	4.6	4.6	4.5	4.2	4.3	4.5	4.6	4.2
Crown Hotel	2.6	3.1	4.2	4.6	4.5	4.5	4.6	4.5	4.1	4.3	4.5	4.5	4.2
State Office Bldg.	2.6	3.0	4.1	4.5	4.6	4.5	4.6	4.5	4.1	4.3	4.5	4.5	4.2
*Longview Reservoir	2.6	3.0	4.1	4.5	4.5	4.5	4.6	4.5	4.2	4.3	4.5	4.5	4.2
10 Westminster St.....	2.6	3.0	4.1	4.6	4.6	4.5	4.6	4.5	4.3	4.3	4.5	4.5	4.2
Nitrites													
Neutaconkanut Reservoir..	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Phenix Ave., Cranston...	.001	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.001	.000
Westminster St., Olneyville	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Budlong Road, Cranston..	.001	.000	.000	.000	.000	.000	.000	.001	.001	.000	.001	.000	.000
Reservoir Ave., Cranston..	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
T. F. Green Airport, War.	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Biltmore Hotel .....	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Crown Hotel .....	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
State Office Bldg. ....	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
*Longview Reservoir .....	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
10 Westminster St.....	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Taste													
Neutaconkanut Reservoir..	0	0	0	0	0	0	0	0	0	0	0	0	0
Phenix Ave., Cranston...	0	0	0	0	0	0	0	0	0	0	0	0	0
Westminster St., Olneyville	0	0	0	0	0	0	0	0	0	0	0	0	0
Budlong Road, Cranston..	0	0	0	0	0	0	0	0	0	0	0	0	0
Reservoir Ave., Cranston..	0	0	0	0	0	0	0	0	0	0	0	0	0
T. F. Green Airport, War.	0	0	0	0	0	0	0	0	0	0	0	0	0
Biltmore Hotel	0	0	0	0	0	0	0	0	0	0	0	0	0
Crown Hotel	0	0	0	0	0	0	0	0	0	0	0	0	0
State Office Bldg.	0	0	0	0	0	0	0	0	0	0	0	0	0
*Longview Reservoir	0	0	0	0	0	0	0	0	0	0	0	0	0
10 Westminster St.....	0	0	0	0	0	0	0	0	0	0	0	0	0
Odor													
Neutaconkanut Reservoir..	0	0	0	0	0	0	0	0	0	0	0	0	0
Phenix Ave., Cranston...	0	0	0	0	0	0	0	0	0	0	0	0	0
Westminster St., Olneyville	0	0	0	0	0	0	0	0	0	0	0	0	0
Budlong Road, Cranston..	0	0	0	0	0	0	0	0	0	0	0	0	0
Reservoir Ave., Cranston..	0	0	0	0	0	0	0	0	0	0	0	0	0
T. F. Green Airport, War.	0	0	0	0	0	0	0	0	0	0	0	0	0
Biltmore Hotel	0	0	0	0	0	0	0	0	0	0	0	0	0
Crown Hotel	0	0	0	0	0	0	0	0	0	0	0	0	0
State Office Bldg.	0	0	0	0	0	0	0	0	0	0	0	0	0
*Longview Reservoir	0	0	0	0	0	0	0	0	0	0	0	0	0
10 Westminster St.....	0	0	0	0	0	0	0	0	0	0	0	0	0
Fluoride													
Neutaconkanut Reservoir..	1.16	1.20	1.18	1.18	1.17	1.16	1.16	1.18	1.05	1.01	1.02	1.02	1.12
Phenix Ave., Cranston...	1.18	1.19	1.16	1.19	1.18	1.09	1.18	1.15	1.02	0.97	0.97	0.99	1.11
Westminster St., Olneyville	1.15	1.19	1.13	1.15	1.15	1.10	1.17	1.12	1.01	1.01	1.00	0.97	1.10
Budlong Road, Cranston..	1.13	1.17	1.17	1.17	1.16	1.10	1.15	1.13	1.00	0.97	0.98	0.99	1.09
Reservoir Ave., Cranston..	1.12	1.19	1.18	1.18	1.17	1.13	1.16	1.13	1.02	0.96	1.01	1.01	1.11
T. F. Green Airport, War.	1.16	1.20	1.19	1.17	1.18	1.16	1.18	1.15	1.03	1.02	0.97	1.00	1.12
Biltmore Hotel	1.19	1.19	1.18	1.18	1.16	1.13	1.17	1.14	1.02	1.02	1.01	0.99	1.12
Crown Hotel	1.20	1.19	1.18	1.16	1.14	1.13	1.18	1.14	1.01	1.01	1.03	0.99	1.11
State Office Bldg.	1.19	1.19	1.18	1.17	1.16	1.13	1.16	1.14	1.02	1.01	1.03	0.99	1.11
*Longview Reservoir	1.12	1.19	1.16	1.16	1.17	1.14	1.15	1.18	1.06	1.00	0.99	0.99	1.11
10 Westminster St.....	1.20	1.19	1.18	1.17	1.18	1.14	1.18	1.14	1.03	1.01	1.01	1.00	1.12

*Sample obtained at Our Lady of Fatima Hospital.

TABLE 14
WATER PURIFICATION WORKS
BACTERIOLOGICAL EXAMINATION OF WATER IN
PROCESS OF FILTRATION
YEAR ENDED SEPTEMBER 30, 1961

1960-61	BACTERIA per ml. (48 HOURS ON AGAR AT 20°C.)											
	Raw Water			Settled Water			*Effluent Water			Tap Water		
	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.
Oct.	75	1	21	130	5	54	80	0	22	3	0	0
Nov.	45	6	19	300	10	86	220	0	50	0	0	0
Dec.	37	2	13	300	0	52	110	0	46	4	0	0
Jan.	60	3	19	80	0	17	35	0	9	1	0	0
Feb.	25	2	12	900	0	142	270	0	61	1	0	0
Mar.	120	4	24	270	0	35	140	0	34	2	0	0
Apr.	190	4	24	400	0	60	210	0	63	3	0	0
May	60	1	19	410	3	111	350	1	95	5	0	0
June	55	3	20	180	1	31	85	0	35	15	0	1
July	50	3	19	40	3	17	38	0	13	7	0	1
Aug.	125	3	21	90	5	31	110	0	29	2	0	0
Sept.	50	6	18	53	3	20	37	6	18	2	0	0
For Year	190	1	19	900	0	55	350	0	40	15	0	0

*Before treatment with chlorine and sodium silicofluoride.

TABLE 15
WATER PURIFICATION WORKS
BACTERIOLOGICAL EXAMINATION OF WATER IN
PROCESS OF FILTRATION
YEAR ENDED SEPTEMBER 30, 1961

1960-61	BACTERIA per ml. (24 HOURS ON AGAR AT 35°C.)											
	Raw Water			Settled Water			*Effluent Water			Tap Water		
	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.
Oct.	15	0	3	15	0	1	3	0	0	15	0	1
Nov.	330	1	19	3	0	1	1	0	0	2	0	0
Dec.	70	0	5	85	0	4	30	0	2	170	0	7
Jan.	13	0	3	2	0	0	115	0	8	30	0	2
Feb.	9	1	4	420	0	19	180	0	15	4	0	1
Mar.	240	0	13	4	0	1	400	0	15	2	0	0
Apr.	10	0	3	5	0	1	1	0	0	73	0	3
May	22	0	4	260	0	11	160	0	7	6	0	1
June	9	0	3	170	0	8	11	0	1	15	0	1
July	18	0	5	10	0	1	3	0	1	4	0	0
Aug.	35	0	5	110	0	7	300	0	22	180	0	7
Sept.	15	0	6	5	0	1	9	0	1	4	0	1
For Year	330	0	6	420	0	5	400	0	6	180	0	2

*Before treatment with chlorine and sodium silicofluoride.

TABLE 16
WATER PURIFICATION WORKS
BACTERIOLOGICAL EXAMINATION OF WATER IN
PROCESS OF FILTRATION
YEAR ENDED SEPTEMBER 30, 1961

1960-61	COLIFORM BACTERIA											
	Raw Water			Settled Water			*Effluent Water			Tap Water		
	No. of 10 ml. Portions Tested	No. of Tests Confirmed	Index per ml.	No. of 10 ml. Portions Tested	No. of Tests Confirmed	Index per ml.	No. of 10 ml. Portions Tested	No. of Tests Confirmed	Index per ml.	No. of 10 ml. Portions Tested	No. of Tests Confirmed	Index per ml.
Oct.	75	48	0.064	50	2	0.004	50	0	0.000	125	0	0.000
Nov.	69	58	.084	46	1	.002	46	1	.002	115	0	.000
Dec.	78	68	.087	52	2	.004	52	0	.000	130	0	.000
Jan.	75	30	.040	50	1	.002	50	0	.000	125	0	.000
Feb.	69	9	.013	46	5	.011	46	1	.002	115	0	.000
Mar.	81	13	.016	54	0	.000	54	0	.000	135	0	.000
Apr.	75	19	.025	50	0	.000	50	0	.000	125	0	.000
May	75	11	.015	50	0	.000	50	0	.000	125	0	.000
June	78	3	.004	52	1	.002	52	0	.000	130	0	.000
July	75	1	.001	50	0	.000	50	1	.002	125	0	.000
Aug.	78	2	.003	52	1	.002	52	0	.000	130	0	.000
Sept.	75	17	.023	50	7	.014	50	1	.002	125	0	.000
For Year	903	279	.031	602	20	.003	602	4	.001	1505	0	.000

*Before treatment with chlorine and sodium silicofluoride.

TABLE 17
WATER PURIFICATION WORKS
BACTERIOLOGICAL EXAMINATION OF WATER IN VARIOUS
BROOKS AND RESERVOIRS ON SCITUATE WATERSHED
YEAR ENDED SEPTEMBER 30, 1961

Monthly Analyses	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
Bacteria Per Mi. 48 Hours on Agar at 20° C													
Ponaganset Reservoir.	460	50	1	35	70	12	12	250	180	70	150	800	174
Coventry Brook	350	160	60	65	140	60	220	400	550	120	1,100	3,200	535
Wilbur Brook	400	370	70	70	750	95	160	750	6,000	530	610	540	862
Westconnaug Res.	270	120	130	140	900	450	600	330	1,200	180	700	350	448
Barden Reservoir	110	40	170	45	1,600	110	90	290	270	140	330	410	300
Cork Brook	530	11	140	60	280	95	80	200	230	65	290	4,800	565
Rush Brook	650	250	120	620	900	210	210	410	1,300	250	1,600	5,600	1,010
Huntinghouse Brook.	190	180	95	150	1,200	230	260	250	700	310	1,400	2,200	594
Harrisdale Brook	850	210	650	310	1,000	350	410	370	250	270	450	430	463
Blanchard Brook	430	140	80	170	700	77	170	420	500	850	600	2,700	570
Moswansicut Pond	310	190	22	27	450	50	140	95	490	360	320	410	239
Regulating Reservoir.	40	130	1,500	125	5,500	70	200	310	70	120	750	290	759
Quonapaug Brook	900	450	65	60	850	140	170	350	350	400	1,500	2,500	645
Hemlock Brook	290	160	1,200	85	1,400	120	330	480	550	140	150	1,200	509
Betty Pond Stream	350	150	600	450	1,700	80	110	260	210	350	440	350	421
Spruce Brook	4,500	70	75	90	650	90	120	330	260	60	550	1,300	675
Brandy Brook	11,000	140	800	130	3,000	400	360	280	280	95	190	470	1,420
Moswansicut—South.	1,200	800	1,300	330	800	370	2,500	10,000	65	6,000	7,200	42,000	6,047
Windsor Brook	1,400	120	95	170	1,500	10	170	1,200	480	900	800	8,500	1,279
Paine Pond	420	280	120	250	1,900	140	130	1,900	900	330	280	1,500	679
Unnamed Brook—A	9,000	300	10	120	850	115	190	2,200	1,500	*	3,000	4,800	2,008
Unnamed Brook—B	1,800	52	48	45	450	30	250	320	350	*	*	2,000	535
Bacteria Per Mi. 24 Hours on Agar at 35° C													
Ponaganset Reservoir.	230	9	0	5	4	2	1	70	105	40	170	560	100
Coventry Brook	65	120	12	60	8	6	7	35	380	95	290	800	157
Wilbur Brook	250	130	13	15	33	23	45	130	900	320	250	3,000	426
Westconnaug Res.	25	40	7	3	11	9	11	65	170	50	550	210	96
Barden Reservoir	23	8	6	10	60	16	12	50	55	125	170	150	57
Cork Brook	700	5	8	12	13	8	16	110	38	13	240	420	132
Rush Brook	270	70	15	8	55	12	22	80	500	120	1,100	6,000	688
Huntinghouse Brook.	18	13	11	18	95	10	25	55	240	190	210	1,500	199
Harrisdale Brook	90	60	70	13	110	12	27	150	190	350	170	380	135
Blanchard Brook	45	28	45	25	70	35	60	145	320	260	450	450	161
Moswansicut Pond	180	90	10	5	20	11	13	70	230	300	110	230	106
Regulating Reservoir.	13	10	42	5	250	6	650	50	42	90	330	190	140
Quonapaug Brook	280	70	16	27	85	5	40	140	550	210	410	850	224
Hemlock Brook	75	22	60	15	45	10	95	60	400	17	180	540	127
Betty Pond Stream	130	80	70	12	90	11	15	65	350	250	320	290	139
Spruce Brook	160	15	18	7	18	5	35	72	55	35	350	620	116
Brandy Brook	5,000	12	100	15	250	28	50	390	220	80	600	340	590
Moswansicut—South.	340	450	12	31	160	90	500	500	10	40,000	2,500	28,000	6,049
Windsor Brook	110	13	10	10	65	21	80	35	150	550	480	4,000	460
Paine Pond	90	50	1	9	170	7	75	250	700	450	350	700	238
Unnamed Brook—A	800	15	35	13	48	5	53	430	420	*	620	2,100	413
Unnamed Brook—B	300	25	15	9	30	9	145	55	160	*	*	850	160
Coliform Bacteria Index Per 100 Mi.													
Ponaganset Reservoir.	110†	0	0	0	70	0	6	13	5	70	110†	110†	.....
Coventry Brook	70	70	25	6	25	0	25	70	25	70	110†	110†	.....
Wilbur Brook	25	25	25	6	25	25	25	70	70	110†	110†	110†	.....
Westconnaug Res.	70	70	25	25	25	6	13	70	20	110†	70	70	.....
Barden Reservoir	25	25	70	25	110†	25	6	70	25	70	70	110†	.....
Cork Brook	110†	25	6	6	70	0	25	25	70	25	70	110†	.....
Rush Brook	110†	70	70	25	110†	70	110†	110†	110†	70	110†	110†	.....
Huntinghouse Brook.	110†	25	70	0	25	25	25	110†	70	25	70	110†	.....
Harrisdale Brook	110†	25	110†	110†	70	25	13	110†	70	110†	25	110†	.....
Blanchard Brook	110†	110†	70	25	110†	0	70	70	110†	110†	110†	110†	.....
Moswansicut Pond	25	20	6	6	25	70	25	25	110†	70	110†	70	.....
Regulating Reservoir.	70	70	70	0	110†	0	25	110†	25	25	110†	110†	.....
Quonapaug Brook	110†	110†	70	0	25	6	25	25	70	110†	110†	110†	.....
Hemlock Brook	70	13	70	25	70	25	25	110†	25	25	110†	110†	.....
Betty Pond Stream	25	0	25	0	110†	25	70	25	110†	70	6	13	.....
Spruce Brook	110†	13	70	6	70	25	25	25	25	110†	110†	110†	.....
Brandy Brook	110†	25	25	25	70	25	110†	25	110†	70	110†	110†	.....
Moswansicut—South.	110†	110†	110†	110†	110†	110†	110†	110†	110†	110†	70	110†	.....
Windsor Brook	750	4.3	46	9.1	23	9.1	750	460	93	750	2,400	11,000	.....
Paine Pond	70	25	110†	25	70	0	25	110†	110†	110†	20	110†	.....
Unnamed Brook—A	110†	70	110†	6	25	25	25	110†	110†	*	110†	110†	.....
Unnamed Brook—B	110†	110†	25	0	25	0	70	70	70	*	*	110†	.....

†Indicates Index of 110+
 *No sample obtained—Brook was dry.
 Note: Unnamed Brook A is just North of Scituate Town Dump. Unnamed Brook B is Southwest of the Foster Nike Site.

TABLE 18
WATER PURIFICATION WORKS
BACTERIOLOGICAL EXAMINATION OF WATER IN
VARIOUS PARTS OF THE DISTRIBUTION SYSTEM
YEAR ENDED SEPTEMBER 30, 1961

Monthly Averages	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
Bacteria Per Ml. 48 Hours on Agar at 20° C													
Neutaconkanut Reservoir ..	0	0	0	0	1	1	0	0	1	0	1	0	0
Phenix Ave., Cranston....	0	0	1	1	1	0	1	0	0	0	0	0	0
Westminster St., Olneyville	5	0	2	2	7	0	0	0	0	1	0	1	2
Budlong Road, Cranston...	0	1	0	0	0	0	0	0	0	0	1	1	0
Reservoir Ave., Cranston...	0	0	0	0	0	0	4	0	1	0	1	0	1
T. F. Green Airport, War..	0	0	0	0	0	0	0	0	1	0	1	0	0
Biltmore Hotel	0	0	0	0	0	0	0	0	0	0	0	1	0
Crown Hotel	0	2	0	0	24	1	0	1	11	0	1	1	3
State Office Bldg.....	0	0	0	0	0	0	0	0	0	0	0	0	0
*Longview Reservoir	0	0	1	0	0	2	1	1	1	2	2	3	1
10 Westminster St.....	0	0	0	0	0	1	0	1	0	0	0	0	0
Bacteria Per Ml. 24 Hours on Agar at 35° C													
Neutaconkanut Reservoir ..	0	0	0	4	1	1	3	0	1	0	28	1	3
Phenix Ave., Cranston....	0	3	3	15	1	1	8	3	0	1	2	0	3
Westminster St., Olneyville	0	1	1	0	1	20	30	5	1	1	6	0	6
Budlong Road, Cranston...	0	0	9	0	1	6	1	0	13	4	13	5	4
Reservoir Ave., Cranston...	0	2	3	1	6	34	10	1	11	2	26	1	8
T. F. Green Airport, War..	1	15	4	10	1	57	5	4	10	1	6	1	10
Biltmore Hotel	1	3	4	2	19	0	0	2	1	1	18	1	4
Crown Hotel	0	4	0	1	14	21	10	0	34	17	1	1	9
State Office Bldg.....	0	1	17	0	1	0	0	0	0	0	0	1	2
*Longview Reservoir	0	8	1	1	5	0	14	1	1	2	5	2	3
10 Westminster St.....	0	19	2	0	1	10	2	0	0	1	0	4	3
Coliform Bacteria Index Per Ml.													
Neutaconkanut Reservoir ..	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Phenix Ave., Cranston....	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Westminster St., Olneyville	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Budlong Road, Cranston...	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Reservoir Ave., Cranston...	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
T. F. Green Airport, War..	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Biltmore Hotel .....	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Crown Hotel .....	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
State Office Bldg.....	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
*Longview Reservoir .....	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.002	.000
10 Westminster St.....	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

*Sample obtained at Our Lady of Fatima Hospital.

TABLE 19
WATER PURIFICATION WORKS
MINERAL ANALYSIS OF WATER—YEAR ENDED SEPTEMBER 30, 1961

Parts per Million	RAW WATER*					TAP WATER					
	1960		1961			1960		1961			Avg.
	Oct.-Dec.	Jan.-Mar.	Apr.-June	July-Sept.	Avg.	Oct.-Dec.	Jan.-Mar.	Apr.-June	July-Sept.		
Aluminum	0.15	0.15	0.02	0.03	0.02	.....	0.06	0.07	0.09	0.07
Arsenic	10	10	0.00	0.00	0.00	.....	0.00	.....	0.00	0.00
Calcium	3.03	4.10	3.09	2.90	3.03	.....	10.70	8.66	9.28	9.35
Chloride .....	.....	3.87	3.80	3.70	3.70	.....	4.50	4.37	4.43	4.14
Copper .....	.....	0.05	0.01	0.02	0.03	.....	0.01	0.00	0.01	0.01
Fluoride	0.15	0.15	0.15	0.14	0.15	.....	1.17	1.11	1.01	1.12
Hardness	10	10	9	10	10	.....	28	28	29	28
Iron	0.14	0.06	0.05	0.10	0.09	.....	0.01	0.01	0.01	0.01
Lead	0.0	0.0	0.0	0.0	0.0	.....	0.0	0.0	0.0	0.0
Magnesium .....	.....	0.56	0.60	0.50	0.55	.....	0.42	0.50	0.40	0.44
Manganese	0.02	0.01	0.00	0.04	0.02	.....	0.00	0.00	0.00	0.00
Phenolic Compounds .....	.....	.....	.....	0.007	0.007	.....	.....	.....	0.001	0.001
Selenium .....	.....	0.00	.....	0.00	0.00	.....	0.00	.....	0.00	0.00
Silica .....	.....	5.2	5.0	5.0	5.1	.....	4.9	4.5	4.5	4.6
Sulphate .....	.....	7.2	7.3	7.0	7.2	.....	13.1	12.9	12.9	13.0
Total Solids	32	33	32	34	33	.....	49	49	50	50
Loss On Ignition	13	13	14	14	13	.....	12	13	9	12
Total Alkalinity	5.0	4.8	4.5	4.6	4.7	.....	15.3	15.3	15.8	15.2
Phenolphthalein Alk.	0.0	0.0	0.0	0.0	0.0	.....	7.3	7.6	8.0	7.7
Zinc .....	.....	0.0	.....	0.0	0.0	.....	0.0	.....	0.0	0.0

*Water from bottom of Scituate Reservoir as received at Purification Works.

TABLE 20
WATER PURIFICATION WORKS
SANITARY CHEMICAL ANALYSIS (P.P.M.)—YEAR ENDED SEPT. 30, 1961

1960-1961	RAW WATER*										TAP WATER							1960-1961	
	Ammonia		Nitrites	Nitrates	Chlorides	Dissolved Oxygen		Total Solids	Loss on Ignition	Ammonia		Nitrites	Nitrates	Chlorides	Dissolved Oxygen		Total Solids		Loss on Ignition
	Free	Alb.				Free	Alb.			P.P.M.	% Sat.				P.P.M.	% Sat.			
Oct.	0.040	0.066	0.000	0.02	2.5	.....	.....	33	15	.....	0.000	0.02	2.7	.....	.....	51	19
Nov.	0.032	0.062	0.000	0.03	2.8	.....	.....	31	11	.....	0.000	0.01	3.0	.....	.....	49	7
Dec.	0.024	0.062	0.000	0.04	3.8	.....	.....	33	12	.....	0.000	.....	4.1	.....	.....	47	10
Jan.	.....	.....	0.000	0.02	4.3	11.6	85.3	31	14	.....	0.000	0.02	4.5	.....	.....	52	12
Feb.	0.040	0.066	0.000	0.02	4.0	12.0	88.6	34	13	.....	0.034	0.02	4.5	.....	.....	53	15
Mar.	0.032	0.062	0.000	0.03	4.0	9.4	69.4	33	13	.....	0.016	0.02	4.5	.....	.....	51	10
Apr.	0.024	0.062	0.000	0.04	4.1	11.0	85.9	33	14	.....	0.024	0.04	4.5	.....	.....	49	13
May	0.020	0.038	0.000	0.05	3.9	9.7	83.5	31	13	.....	0.020	0.04	4.4	.....	.....	51	16
June	0.016	0.054	0.000	0.15	3.6	8.3	74.0	31	15	.....	0.016	0.14	4.2	.....	.....	48	10
July	0.032	0.052	0.000	0.07	3.6	7.6	77.5	31	10	.....	0.016	0.07	4.1	.....	.....	50	8
Aug.	0.056	0.060	0.000	0.05	3.9	5.3	50.4	34	14	.....	0.024	0.05	4.3	.....	.....	52	9
Sept.	0.048	0.044	0.000	0.03	3.9	4.5	42.3	37	17	.....	0.024	0.02	4.3	.....	.....	48	11
Avg.	0.034	0.057	0.000	0.04	3.7	8.8	73.0	33	13	.....	0.021	0.04	4.1	.....	.....	50	12

*Water from bottom of Setuate Reservoir as received at Purification Works.

TABLE 21
WATER PURIFICATION WORKS
LABORATORY EXAMINATIONS MADE DURING THE FISCAL YEAR ENDED SEPTEMBER 30, 1961

SOURCE OF WATER TESTED	Frequency of Test or Examination	Number of Tests or Analyses Made During the Fiscal Year							
		Chemical	Bacteriological	Microscopical	Sanitary Chemical	Mineral	Miscellaneous	Total	
I BROOKS AND STREAMS ON WATERSHED									
Fourteen Brooks, Two Streams and One Pond.....	Monthly.....	1,686	2,542	.....	170	.....	.....	.....	4,398
II SMALLER STORAGE RESERVOIRS ON WATERSHED									
Regulating Reservoir.....	Monthly.....	84	105	.....	.....	.....	.....	.....	189
Westonning Reservoir.....	Monthly.....	84	107	.....	.....	.....	.....	.....	191
Barden Reservoir.....	Monthly.....	84	106	.....	.....	.....	.....	.....	190
Moswanscut Pond.....	Monthly.....	84	103	.....	.....	.....	.....	.....	189
Ponagsanscut Reservoir.....	Monthly.....	84	96	.....	.....	.....	.....	.....	180
III SCITUATE RESERVOIR									
Surface Water.....	Bi-Weekly.....	208	353	.....	156	.....	.....	.....	726
Subsurface Water (See Purif. Wks.—Raw Water).....	.....	.....	.....	.....	.....	.....	.....	.....	.....
IV PAWTUXET RIVER—BELOW GAINER DAM									
Gainer Dam Meter Chamber.....	Bi-Weekly.....	182	.....	.....	156	.....	.....	.....	338
Fiskeville, R. I.....	Bi-Weekly.....	182	.....	.....	156	.....	.....	.....	338
Twelve other locations on Pawtuxet River.....	Bi-Weekly.....	2,340	.....	.....	2,166	.....	.....	.....	4,506
V WATER PURIFICATION WORKS									
Raw Water (from Bottom of Scit. Res.).....	Daily.....	2,982	3,676	.....	1,444	.....	.....	.....	8,463
Raw Water (from Bottom of Scit. Res.).....	Bi-Weekly.....	.....	.....	.....	26*	.....	.....	.....	35
Raw Water (from Bottom of Scit. Res.).....	Monthly.....	.....	.....	.....	60**	.....	.....	.....	60
***Raw Water (from Bottom of Scit. Res.).....	Every 15 Weeks.....	.....	.....	.....	.....	.....	.....	.....	30
Aerated Influent.....	Daily.....	718	.....	.....	.....	.....	.....	.....	718
Mixer.....	Daily.....	1,826	.....	.....	.....	.....	.....	.....	1,826
Settled.....	Daily.....	2,451	1,228	.....	.....	.....	.....	.....	4,040
Settled.....	Bi-Weekly.....	.....	.....	.....	26*	.....	.....	.....	33
Settled.....	Monthly.....	.....	.....	.....	44**	.....	.....	.....	44
Filtered.....	Daily.....	1,082	.....	.....	.....	.....	.....	.....	1,082
Filtered.....	Monthly.....	.....	.....	.....	44**	.....	.....	.....	44
Unchlorinated Effluent.....	Daily.....	3,180	1,211	.....	1,444	.....	.....	.....	5,835
Unchlorinated Effluent.....	Bi-Weekly.....	.....	.....	.....	.....	.....	.....	.....	35
Unchlorinated Effluent.....	Monthly.....	.....	.....	.....	20**	.....	.....	.....	20
Chlorinated Effluent.....	Daily.....	1,500	1,737	.....	1,250	.....	.....	.....	4,487
Raw Water (from Bottom of Scituate Reservoir).....	Daily at 3:00 P.M.....	987	1,142	.....	988	.....	.....	.....	3,117
Unchlorinated Effluent.....	Daily at 3:00 P.M.....	993	1,002	.....	992	.....	.....	.....	2,987

TABLE 21 (Continued)
WATER PURIFICATION WORKS
LABORATORY EXAMINATIONS MADE DURING THE FISCAL YEAR ENDED SEPTEMBER 30, 1961

SOURCE OF WATER TESTED	Frequency of Test or Examination	Number of Tests or Analyses Made During the Fiscal Year							
		Chemical	Bacteriological	Microscopical	Sanitary-Chemical	Mineral	Miscellaneous	Total	
VI NEUTACONKANUT DISTRIBUTION RESERVOIR									
Sample from nearby Tap.....	Daily.....	1,500	1,730	.....9	1,000	.....	.....	.....	4,230
Sample from nearby Tap.....	Bi-Weekly.....	.....	.....	.....	.....	.....	.....	.....	9
VII LONGVIEW DISTRIBUTION RESERVOIR									
Sample from nearby Tap.....	Daily.....	1,500	1,738	.....9	1,000	.....	.....	.....	4,238
Sample from nearby Tap.....	Bi-Weekly.....	.....	.....	.....	.....	.....	.....	.....	9
VIII DISTRIBUTION SYSTEM									
Providence City Hall Tap Water.....	Daily.....	2,403	2,107	.....9	1,505	.....	301	.....	6,316
Providence City Hall Tap Water.....	Bi-Weekly.....	.....	.....	.....	.....51**	.....	.....	.....	9
Providence City Hall Tap Water.....	Monthly.....	.....	.....	.....	.....	.....	.....	.....	51
Providence City Hall Tap Water.....	Every 13 Weeks.....	.....	.....	.....	.....	.....	.....	.....	30
***Providence City Hall Tap Water.....	Monthly.....	616	384	.....	288	.....	.....	.....	1,288
****Sectional Tests.....	.....	356	235	.....	225	.....	.....	.....	816
****Consumers' Complaints (36 during the year).....	.....	13	833	.....	107	.....	.....	.....	973
Disinfection of Newly Laid Mains.....	.....	11,796	13,718	.....	7,864	.....	.....	.....	33,378
§Sectional Tests.....	Daily.....	.....	.....	.....	.....	.....	.....	.....	.....
IX MISCELLANEOUS TESTS									
Coagulation Tests to Determine Chemical Dosages.....	.....	120	.....	.....	.....	.....	.....	.....	174
Analysis of Ferric-Floc used for Treatment.....	.....	39	.....	.....	.....	.....	.....	.....	52
Analysis of Quicklime used for Treatment.....	.....	19	.....	.....	.....	.....	.....	.....	57
Analysis of Sodium Silicofluoride used for Treatment.....	.....	2	.....	.....	.....	.....	.....	.....	2
Water, Filter Sand and Other Materials.....	.....	205	156	.....	138	.....	.....	.....	527
Totals.....	.....	39,306	34,331	63	21,346	64	1,152	.....	96,262

*For Oxygen Consumed only.
 **Exclusive of Oxygen Consumed.
 ***Composite of 13 Weekly Samples.
 ****Samples from 8 Random Dwellings (location changed monthly).
 †Samples from eight fixed locations.

TABLE 22
WATER DISTRIBUTION SYSTEM
NEUTACONKANUT HIGH SERVICE PUMPING STATION
OPERATING STATISTICS FOR YEAR ENDED SEPTEMBER 30, 1961

1960-1961	ELECTRICALLY-DRIVEN PUMPS										GASOLINE ENGINE-DRIVEN PUMP					Total Water Pumped Mil. Gals.	Fuel Oil Used For Heating Gals.
	No. 1—10" Pump 2700 GPM. TDH 90'			No. 2—12" Pump 3800 GPM. TDH 104'			No. 3—16" Pump 7000 GPM. TDH 96'			No. 4—16" Pump 7000 GPM. TDH 96'							
	Operated		Water Pumped Mil. Gals.	Operated		Water Pumped Mil. Gals.	Operated		Water Pumped Mil. Gals.	Water Pumped Mil. Gals.	Gasoline Used Gals.	Oil Used Qts.	For Month	Avg. Per Day			
	Days	Hours and Minutes		Days	Hours and Minutes		Days	Hours and Minutes									
Oct.	17	400-00	69.76	14	318-00	87.95	0	0	2-00	0.82	70	158.53	5.11	168			
Nov.	30	709-00	124.18	3	3-00	0.34	3-00	0.55	5-00	2.11	150	127.38	4.25	503			
Dec.	31	729-00	126.99	5	5-00	0.88	4-00	0.72	4-00	1.66	124	130.25	4.20	979			
Jan.	31	730-00	126.64	3	3-00	0.53	2-00	0.36	4-00	1.67	155	129.20	4.17	1,079			
Feb.	28	468-00	114.75	0	0	0	0	0	4-00	1.21	130	115.96	4.14	796			
Mar.	31	738-30	127.68	0	0	0	0	0	5-00	1.87	145	129.55	4.18	800			
Apr.	30	715-00	123.50	1	1-00	0.17	0	0	4-00	1.68	116	125.35	4.18	539			
May	22	504-35	88.14	10	222-00	60.83	1	1-00	4-30	1.70	151	150.85	4.87	136			
June	1	1-00	0.21	30	646-55	179.63	3	31-30	4-00	1.69	109	192.88	6.43	0			
July	6	69-00	13.43	28	574-30	159.74	6	79-30	4-00	1.33	130	203.30	6.56	0			
Aug.	8	56-00	13.69	31	702-00	189.29	1	7-00	5-00	1.57	170	206.33	6.66	0			
Sept.	5	39-00	9.32	30	674-00	182.71	0	0	4-00	1.53	103	193.56	6.45	0			
Totals	240	5,359-05	938.29	155	3,149-25	862.27	20	128-00	44.04	18.84	1,553	1,863.44	5.11	5,000			

*Narragansett Electric Co. Power Rate G.
†Engine Test Run.

TABLE 23
WATER DISTRIBUTION SYSTEM
BATH STREET HIGH SERVICE PUMPING STATION
OPERATING STATISTICS FOR YEAR ENDED SEPTEMBER 30, 1961

1960-1961	ELECTRICALLY-DRIVEN PUMPS										GASOLINE ENGINE-DRIVEN PUMPS										TOTAL WATER PUMPED		Fuel Oil Used for Heating — Gals.
	Pump No. 1 2000 GPM. TDH 98'					Pump No. 2 2000 GPM. TDH 98'					Pump No. 3 2000 GPM. TDH 98'; 150 HP Sterling Engine					Pump No. 4 2000 GPM. TDH 98'; 150 HP Sterling Engine					Mil. Gals.	Avg. Per Day	
	Operated		Water Pumped		Mtl. Gals.	Operated		Water Pumped		Mtl. Gals.	Operated		Water Pumped		Mtl. Gals.	Operated		Water Pumped		Mtl. Gals.				Avg. Per Day
	Days	Hours and Minutes	Days	Hours and Minutes		Days	Hours and Minutes	Days	Hours and Minutes		Days	Hours and Minutes	Days	Hours and Minutes		Days	Hours and Minutes	Days	Hours and Minutes		Days	Hours and Minutes	
Oct.....	23	247-30	33.14	34.25	23	255-30	34.25	23,100	\$	520.76	1	1-00	0.13	7	0	0	0	0	0	0	67.65	2.18	0
Nov.....	28	338-00	43.25	43.15	24	322-00	43.15	37,520		674.19	0	0	0	0	0	0	0	0	0	0	88.40	2.95	25
Dec.....	23	330-00	43.48	40.64	21	298-30	40.64	37,100		673.56	2	1-45	0.24	14	2	2	2-00	0.27	14	2	86.63	2.79	372
Jan.....	29	365-00	50.23	38.83	21	287-00	38.83	35,000		651.27	1	1-00	0.14	9	0	1	1-00	0.14	9	0	89.34	2.88	435
Feb.....	25	314-00	42.54	43.92	24	326-15	43.92	37,660		673.20	1	1-00	0.13	8	0	1	1-00	0.13	8	0	86.72	3.10	330
Mar.....	26	338-00	48.66	44.06	23	324-15	44.06	37,380		672.58	1	1-00	0.14	5	20	1	1-00	0.14	5	20	93.00	3.00	270
Apr.....	27	350-00	47.26	41.63	24	309-15	41.63	37,940		694.46	1	1-00	0.13	5	0	1	1-00	0.13	5	0	89.15	2.97	95
May.....	17	226-15	30.41	30.39	30	370-30	30.39	36,400		661.72	1	0-30	0.07	12	0	1	1-00	0.14	12	0	81.01	2.61	0
June.....	24	305-30	41.03	21.03	19	166-20	21.03	21,000		493.01	2	2-00	0.25	6	0	2	2-00	0.25	6	0	63.56	2.12	0
July.....	22	279-00	36.36	40.11	28	300-45	40.11	33,040		630.10	1	1-00	0.13	3	0	1	1-00	0.13	3	0	76.73	2.48	0
Aug.....	25	255-30	33.74	31.87	23	245-00	31.87	30,800		605.90	1	1-00	0.13	9	0	1	1-00	0.13	9	0	65.37	2.11	0
Sept.....	18	206-30	27.02	28.80	23	218-45	28.80	**25,359		565.97	2	2-00	0.26	16	0	2	2-00	0.26	16	0	56.34	1.88	0
Totals....	289	3,570-15	480.62	459.68	285	3,424-05	459.68	392,299		\$7,516.72	14	13-15	1.75	94	22	14	14-00	1.85	94	22	943.90	2.59	1,527

*Narragansett Electric Co. Power Rate G.

†Engine Test Run.

**Estimated Bill (Sept.)

TABLE 24
WATER DISTRIBUTION SYSTEM
NEUTACONKANUT DISTRIBUTION RESERVOIR*
OPERATING STATISTICS FOR YEAR ENDED SEPTEMBER 30, 1961

1960- 1961	OPERATING CHARACTERISTICS DURING MONTH													
	7 A.M. Statistics on First Day of Month		Water Level			Storage—Mil. Gals.			Daily Water Level Fluctuation—Ft.			Daily Storage Fluctuation—M. G.		
	Water Level	Storage Mil. Gals.	Max.	Min.	Avg.†	Max.	Min.	Avg.†	Max.	Min.	Avg.	Max.	Min.	Avg.
Oct.	226.29	40.84	226.77	223.45	226.21	41.70	35.85	40.71	3.22	0.90	1.95	5.67	1.58	3.43
Nov.	225.88	40.13	226.70	223.18	226.32	41.57	35.38	40.90	3.18	1.24	2.18	5.59	2.18	3.83
Dec.	226.43	41.09	226.80	223.05	226.33	41.75	35.15	40.91	3.45	0.91	2.28	6.06	1.60	3.96
Jan.	226.51	41.23	227.03	223.47	226.33	42.14	35.89	40.91	2.83	1.36	2.16	4.98	2.39	3.80
Feb.	226.12	40.55	226.96	223.14	226.43	42.02	35.31	41.09	3.56	1.09	2.36	6.26	1.91	4.16
Mar.	226.69	41.55	226.83	223.57	226.45	41.81	36.06	41.12	3.10	1.20	2.21	5.46	2.10	3.89
Apr.	226.71	41.59	226.79	223.46	226.42	41.73	35.87	41.07	3.16	1.11	2.25	5.56	1.95	3.94
May	226.49	41.19	226.76	223.35	226.31	41.68	35.68	40.88	3.30	0.83	2.04	5.80	1.47	3.58
June	226.66	41.50	227.06	223.20	226.51	42.19	35.41	41.23	3.49	1.02	2.34	6.14	1.80	4.10
July	225.32	39.14	227.00	223.06	226.38	42.09	35.17	41.00	3.48	1.20	2.33	6.13	2.10	4.10
Aug.	226.11	40.53	226.90	222.95	226.43	41.93	34.97	41.09	3.51	1.09	2.20	6.17	1.91	3.86
Sept.	225.80	39.99	226.89	223.27	226.50	41.91	35.54	41.21	3.41	0.64	2.20	6.00	1.13	3.87
For Year ...	—	—	227.06	222.95	226.39	42.19	34.97	41.02	3.56	0.64	2.21	6.26	1.13	3.88

*Storage capacity at overflow elevation of 227.00=42,090,000 gallons. †Average of 7 A.M. statistics.
 Note:—Water levels are elevations in feet above mean high water in Providence harbor.

TABLE 25
WATER DISTRIBUTION SYSTEM
LONGVIEW DISTRIBUTION RESERVOIR*

OPERATING STATISTICS FOR YEAR ENDED SEPTEMBER 30, 1961

1960-1961	OPERATING CHARACTERISTICS DURING MONTH													
	7 A.M. Statistics on First Day of Month		Water Level			Storage—Mil. Gals			Daily Water Level Fluctuation—Ft.			Daily Storage Fluctuation—M. G.		
	Water Level	Storage Mil. Gals.	Max.	Min.	Avg.†	Max.	Min.	Avg.†	Max.	Min.	Avg.	Max.	Min.	Avg.
Oct.	304.45	11.68	305.07	302.09	304.18	11.95	10.59	11.55	2.54	1.14	1.79	1.18	0.52	0.83
Nov.	304.00	11.47	304.63	302.39	304.15	11.77	10.73	11.54	2.04	1.14	1.60	0.94	0.53	0.74
Dec.	304.20	11.56	304.80	302.43	304.33	11.85	10.75	11.63	2.08	1.03	1.66	0.96	0.48	0.77
Jan.	304.00	11.47	304.81	302.29	304.34	11.85	10.68	11.63	2.19	0.75	1.72	1.01	0.35	0.79
Feb.	304.11	11.52	305.15	302.53	304.39	12.01	10.79	11.65	2.21	1.20	1.70	1.03	0.55	0.79
Mar.	304.13	11.53	304.93	302.43	304.47	11.91	10.75	11.69	2.37	1.36	1.82	1.09	0.63	0.84
Apr.	304.55	11.73	304.87	302.40	304.47	11.88	10.73	11.69	1.98	1.13	1.68	0.92	0.53	0.78
May	304.70	11.80	305.39	301.96	304.56	12.12	10.53	11.73	3.31	1.28	2.14	1.53	0.59	0.99
June	304.55	11.73	305.26	301.34	304.32	12.06	10.24	11.62	3.20	0.64	2.09	1.48	0.30	0.97
July	304.95	11.92	305.39	300.00	304.56	12.12	9.62	11.64	4.18	0.63	2.29	1.93	0.29	1.09
Aug.	304.21	11.57	305.30	300.80	304.47	12.08	9.99	11.69	4.25	0.90	2.20	1.97	0.42	1.02
Sept.	304.34	11.63	305.19	301.97	304.27	12.03	10.54	11.60	2.68	0.88	1.76	1.24	0.41	0.81
For Year ..	---	---	305.39	300.00	304.56	12.12	9.62	11.64	4.25	0.63	1.87	1.97	0.29	0.87

*Storage capacity at overflow elevation of 306.00=17,400,000 gallons. †Average of 7 A.M. statistics.
 Note:—Water levels are elevations in feet above mean high water in Providence harbor.

TABLE 26

**WATER PIPE LAID, REMOVED AND ADDED
YEAR ENDED SEPTEMBER 30, 1961**

CITY or TOWN	PIPE LAID IN FEET					
	6"	8"	10"	12"	16"	Totals
Providence.....	3,230.22	802.67	0	0	3,297.17	7,330.06
Cranston.....	5,412.54	13,871.80	0	0	0	19,284.34
Johnston.....	975.30	8,870.78	0	0	0	9,846.08
North Providence.	1,681.75	2,250.85	0	2,365.05	0	6,297.65
Totals.....	11,299.81	25,796.10	0	2,365.05	3,297.17	42,758.13
	PIPE REMOVED IN FEET					
	6"	8"	10"	12"	16"	Totals
Providence.....	7,369.92	1,943.45	1,328.03	0	2,593.26	13,234.66
Cranston.....	41.80	0	0	0	0	41.80
Johnston.....	205.50	0	0	0	0	205.50
North Providence.	259.85	7.40	0	25.39	0	292.64
Totals.....	7,877.07	1,950.85	1,328.03	25.39	2,593.26	13,774.60
	NET LENGTH IN FEET ADDED TO DISTRIBUTION SYSTEM					
	6"	8"	10"	12"	16"	Totals
Providence.....	-4,139.70	-1,140.78	-1,328.03	0	+703.91	-5,904.60
Cranston.....	+5,370.74	+13,871.80	0	0	0	+19,242.54
Johnston.....	+769.80	+8,870.78	0	0	0	+9,640.58
North Providence.	+1,421.90	+2,243.45	0	+2,339.66	0	+6,005.01
Totals.....	+3,422.74	+23,845.25	-1,328.03	+2,339.66	+703.91	+28,983.53

TABLE 27

Diameter of Pipe	PUBLIC WATER MAINS IN USE ON SEPTEMBER 30, 1961												SPECIAL HIGH PRESSURE FIRE SERVICE	
	Providence		Cranston		Johnston		No. Providence		Total*		Providence		Feet	Miles
	Feet	Miles	Feet	Miles	Feet	Miles	Feet	Miles	Feet	Miles	Feet	Miles		
6-inch.....	1,508,697.82	285.74	610,307.95	115.59	112,716.76	21.35	4149,326.73	28.28	2,381,049.26	450.96	82.06	0.02		
8-inch.....	331,249.53	67.74	283,333.06	53.66	131,440.33	24.89	101,331.66	19.19	87,534.58	160.48	1,800.32	0.34		
10-inch.....	13,017.62	2.47	0	0	0	0	0	0	13,017.62	2.47	0	0		
12-inch.....	2,237,509.58	44.98	99,806.90	18.90	89,421.81	1.79	30,727.65	5.82	377,465.94	71.49	6,893.80	1.31		
16-inch.....	141,871.47	26.87	3,512.31	0.67	6,393.63	1.21	0	0	131,777.41	28.75	54,865.59	10.39		
20-inch.....	19,775.66	3.74	0	0	0	0	0	0	19,775.66	3.74	0	0		
24-inch.....	56,750.72	10.75	5,405.43	1.03	31,347.98	5.94	2,368.71	0.45	95,872.84	18.16	4,299.44	0.81		
30-inch.....	43,631.87	8.26	31,894.62	6.04	0	0	3,753.06	0.71	79,279.55	15.01	0	0		
36-inch.....	4,555.68	0.86	5,395.12	1.02	0	0	0	0	9,950.80	1.88	0	0		
42-inch.....	2,893.25	0.55	22,556.37	4.27	0	0	0	0	25,449.62	4.82	0	0		
48-inch.....	14,918.00	2.83	1,584.00	0.30	394.00	0.07	0	0	16,896.00	3.20	0	0		
60-inch.....	5,559.00	1.05	10,671.00	2.02	4,340.00	0.82	0	0	20,570.00	3.90	0	0		
66-inch.....	0	0	8,448.00	1.60	0	0	0	0	8,448.00	1.60	0	0		
Totals.....	2,380,430.20	450.84	1,082,914.76	205.10	296,054.51	56.07	287,507.81	54.45	4,046,907.28	766.46	67,941.21	12.87		

*Special High Pressure Fire Service Included.
 † Includes 691.45 feet of 6" main in Pawtucket.
 ‡ Includes 44.47 feet of 12" main in Pawtucket.
 ‡ Includes 146.00 feet of 12" main in Smithfield.
 † Includes 179.30 feet of 6" main in Pawtucket.

TABLE 28

GATES IN USE ON SEPTEMBER 30, 1961

City or Town	Stop Gates										Gates on Public Fire Hydrants		Gates on Unwatering Hydrants		Gates on Blowoffs			Total					
											6"	8"	Total	6"	8"	Total	6"		8"	12"	Total		
	6"	8"	10"	12"	16"	20"	24"	30"	36"	42"	48"	Total	6"	8"	Total	6"	8"		Total	6"	8"	12"	Total
Providence	4581	930	18	614	258	28	68	35	7	1	10	6550	810	1822	2632	2	14	16	1	2	1	4	*9202
Cranston	1680	690	0	200	9	0	9	16	12	9	4	2629	886	6	892	3	5	8	0	2	3	5	*3534
Johnston	298	261	1	25	12	5	5	0	0	0	2	609	240	13	253	3	0	3	0	0	2	2	*867
N. Providence ..	393	208	0	65	0	0	2	0	0	0	0	668	277	0	277	0	3	3	0	0	0	0	948
Totals	6952	2089	19	*904	*279	*33	84	51	19	10	*16	*10456	2213	1841	4054	8	22	30	1	4	6	11	*14551

Note: Above table includes all gates in the special high pressure fire system in Providence (130) and gates on Neutaconkunt Conduit and Scituate Aqueduct east of the Siphon Chamber.
 *Totals include 5-12" and 5-16" Rotary Plug Valves in Providence, 5-16" Rotary Plug Valves in Cranston, 5-16" Rotary Plug Valves in Johnston, 4-16", 2-20", and 1-48" Butterfly Valves in Providence, and 1-48" Butterfly Valve in Cranston.

TABLE 29
SERVICE PIPES INSTALLED, REMOVED, AND REPAIRED FOR YEAR ENDED SEPT. 30, 1961

CITY OR TOWN	INSTALLED				REMOVED				REPAIRED			
	General		Fire Supply		General		Fire Supply		General		Fire Supply	
	Copper 3/4"-2"	Cast Iron 4"-8"	Cast Iron 4"-8"	Cast Iron 4"-8"	Lead or Copper 1/2"-2"	Cast Iron 4"-6"	Cast Iron 4"-6"	Cast Iron 4"-6"	Lead or Copper 3/8"-2"	Cast Iron 4"	Cast Iron 6"	Total
Providence	211	17	17	245	289	7	13	309	40	2	1	43
Cranston	302	3	3	308	43	0	2	45	17	0	0	17
Johnston	138	1	0	139	11	0	0	11	9	0	0	9
North Providence	119	1	1	121	10	0	0	10	5	0	0	5
Totals	770	22	21	813	353	7	15	375	71	2	1	74

TABLE 30
NUMBER AND SIZE OF ACTIVE SERVICES
AS OF SEPTEMBER 30, 1961

	1/2"	5/8"	3/4"	1"	1 1/4"	1 1/2"	2"	3"	4"	6"	8"	10"	12"	16"	24"	30"	Total
Providence	265	26,546	7,157	1,372	573	253	449	6	994	867	64	4	5	2	..	..	38,557
Cranston	5	7,147	6,981	893	47	208	228	..	69	67	22	..	4	..	1	1	15,673
Johnston .....	..	786	1,972	360	10	58	40	..	6	8	2	..	..	..	..	..	3,242
North Providence .....	..	1,104	1,887	424	6	126	47	..	16	8	3	..	1	..	..	..	3,622
Totals	270	35,583	17,997	3,049	636	645	764	6	1,085	950	91	4	10	2	1	1	61,094

TABLE 31
PUBLIC FIRE HYDRANTS

HYDRANT ACTIVITIES DURING YEAR ENDED SEPT. 30, 1961					
	Providence	Cranston	Johnston	North Providence	Totals
Post Hydrants Installed.....	136	58	14	9	217
Post Hydrants Removed.....	12	7	2	3	24
Flush Hydrants Removed.....	127	0	0	0	127
HYDRANTS IN DISTRIBUTION SYSTEM ON SEPT. 30, 1961**					
Post Hydrants	1,485	895	271	279	2,930
Flush Hydrants	1,653	0	0	0	1,653
Totals	*3,138	895	271	279	*4,583

*Includes 122 Post Hydrants and 39 Flush Hydrants in Special High Pressure Fire Service in Providence.
 **Hydrant statistics in the City of Warwick and the East Smithfield Water District are not included, as those distribution systems are not owned or maintained by the Providence Water Works.

TABLE 32
NUMBER, MAKE AND SIZE OF METERS ON ACTIVE SERVICES
AS OF SEPTEMBER 30, 1961

PROVIDENCE

MAKE	5/8"	3/4"	1"	1 1/2"	2"	3"	4"	6"	8"	10"	12"	16"	Total
Trident.....	23,110	2,399	700	956	1,202	90	73	59	14	5			28,608
Thomson.....	7,509	755	378	56	128	2	4						8,833
Empire.....	227	12	12	106	38	1	1						397
Crown.....	61	18	8	45	11	1	3						147
Hersey.....				2	3	2	13	72	6				98
Venturi.....												2	2
TOTALS.....	30,907	3,184	1,098	1,165	1,382	96	94	131	20	5		2	38,084

***CRANSTON**

MAKE	5/8"	3/4"	1"	1 1/2"	2"	3"	4"	6"	8"	10"	12"	16"	Total
Trident.....	11,660	654	265	199	197	2	6	13	2	1	1		13,000
Thomson.....	2,410	62	40	9	12								2,533
Empire.....	67	2		10	6								85
Crown.....				3	1								4
Hersey.....				1				3	4				8
Venturi.....					1						2		2
TOTALS.....	14,137	718	305	221	217	2	6	16	6	1	3		15,632

*Includes 1-6" Trident Compound Meter supplying City of Warwick.
2-6" Trident Protectus Meters supplying City of Warwick.
1-10" Trident Protectus Meter supplying City of Warwick.
1-12" Trident Crest Meter supplying Kent County Water Authority.
1-12" Venturi Meter supplying Kent County Water Authority at Water Purification Works.

***JOHNSTON**

MAKE	5/8"	3/4"	1"	1 1/2"	2"	3"	4"	6"	8"	10"	12"	16"	Total
Trident.....	2,588	254	59	31	29					1			2,962
Thomson.....	262	12	4		2								280
Empire.....	1			3									4
TOTALS.....	2,851	266	63	34	31					1			3,246

*Includes 1-8" Trident Crest Meter supplying East Smithfield Water Co.

***NORTH PROVIDENCE**

MAKE	5/8"	3/4"	1"	1 1/2"	2"	3"	4"	6"	8"	10"	12"	16"	Total
Trident.....	2,705	266	133	36	22	1	2	3			1		3,169
Thomson.....	422	8	7	1	1								439
Empire.....	1			4	1								6
Crown.....			1										1
Hersey.....								5					5
TOTALS.....	3,128	274	141	41	24	1	2	8			1		3,620

*Includes 1-12" Trident Crest Meter supplying East Smithfield Water Co.

TABLE 33
CAPACITY AND CONSUMPTION

Year Ended Sept. 30	Purif. Works Capacity M.G.D.	CONSUMPTION							
		Total During Year M.G.	Average M.G.D.	Maximum Day			Maximum Hour		
				Total M.G.	Percent of Plant Capacity	Percent of Average Day	Rate in M.G.D.	Percent of Plant Capacity	Percent of Average Day
1941....	61.6	11,020.9	30.2	40.8	66.2	135.1	66.7	108.3	220.9
1942....	61.6	11,409.3	31.3	38.3	62.2	122.4	54.7	88.8	174.8
1943....	61.6	11,586.8	31.7	46.7	75.8	147.3	77.0	125.0	242.9
1944....	61.6	12,538.9	34.3	49.5	80.4	144.3	69.8	113.3	203.5
1945....	61.6	12,528.9	34.3	43.6	70.8	127.1	71.3	115.7	207.9
1946....	61.6	12,685.3	34.8	50.5	82.0	145.1	82.1	133.3	235.9
1947....	61.6	13,169.0	36.1	49.8	80.8	138.0	71.8	116.6	198.7
1948....	61.6	13,644.7	37.3	54.7	88.8	146.6	82.3	133.6	220.6
1949....	61.6	13,510.3	37.0	60.2	97.7	162.7	89.3	145.0	241.4
1950....	61.6	13,373.8	36.6	62.0	100.6	169.4	98.4	159.7	268.9
1951....	61.6	13,721.6	37.6	56.4	91.6	150.0	91.2	148.1	242.6
1952....	61.6	13,829.3	37.8	70.0	113.6	185.2	110.4	179.2	292.1
1953....	61.6	14,182.8	38.9	66.4	107.8	170.7	100.8	163.6	259.1
1954....	105.0	13,840.6	37.9	68.6	65.3	181.0	118.1	112.5	311.6
1955....	105.0	14,933.0	40.9	70.2	65.9	171.6	117.1	111.5	286.3
1956....	105.0	15,145.2	41.4	68.8	65.5	166.2	103.6	98.7	250.2
1957....	105.0	15,963.8	43.7	84.7	80.7	193.8	131.0	124.8	299.8
1958....	105.0	14,761.0	40.4	68.5	65.2	169.6	108.7	103.5	269.1
1959....	105.0	15,430.0	42.3	71.1	67.7	158.1	111.5	106.2	263.6
1960....	105.0	15,859.0	43.3	77.4	73.7	178.8	120.3	114.6	277.8
1961....	105.0	16,495.9	45.2	69.3	66.0	153.3	112.3	107.0	248.5

TABLE 34
CONSUMPTION OF WATER—MILLION GALLONS
YEAR ENDED SEPTEMBER 30, 1961

1960-1961	LOW SERVICE*				HIGH SERVICE†				TOTAL SERVICE*†			
	Max. Day	Min. Day	Avg. Day	Total	Max. Day	Min. Day	Avg. Day	Total	Max. Day	Min. Day	Avg. Day	Total
Oct.	40.44	26.44	34.92	1,082.42	7.90	6.24	7.30	226.38	48.33	33.00	42.22	1,308.80
Nov.	41.30	27.31	35.34	1,060.09	7.72	6.33	7.19	215.69	49.02	34.09	42.53	1,275.78
Dec.	39.04	25.35	33.99	1,053.71	7.62	5.96	7.00	216.96	46.41	32.12	40.99	1,270.67
Jan.	39.97	23.55	34.19	1,039.96	7.49	5.80	7.05	218.49	47.46	29.34	41.24	1,278.45
Feb.	40.29	27.81	36.30	1,016.50	7.90	6.53	7.24	202.66	47.68	34.44	43.54	1,219.16
Mar.	39.15	27.38	35.09	1,087.76	7.81	6.12	7.17	222.33	46.64	33.69	42.26	1,310.09
Apr.	39.09	25.52	33.86	1,015.65	7.67	6.16	7.15	214.43	46.45	31.94	41.00	1,230.08
May	42.79	25.88	35.48	1,099.73	8.61	6.23	7.48	232.02	51.39	32.10	42.96	1,331.75
June	54.53	30.16	43.16	1,294.92	10.92	6.88	8.54	256.24	65.01	37.03	51.71	1,551.16
July	55.31	25.92	42.02	1,302.52	12.37	6.19	9.04	280.37	67.68	32.11	51.06	1,582.89
Aug.	57.13	29.01	44.03	1,364.86	11.83	6.71	8.77	271.83	69.30	35.73	52.80	1,636.79
Sept.	56.21	28.89	41.67	1,230.07	11.23	6.37	8.34	250.21	67.36	35.26	50.01	1,500.28
For Year	57.13(a)	23.55(b)	37.50	13,688.29	12.37(c)	5.80(d)	7.69	2,807.61	69.30(e)	29.34(f)	45.19	16,495.90

(a) Aug. 16; (b) Jan. 1.

(c) July 12; (d) Jan. 1.
 *Includes water supplied to City of Warwick, Kent County Water Authority and to State Institutions.

†Includes water supplied to East Smithfield Water Co.

(e) Aug. 16; (f) Jan. 1

TABLE 35
WATER SOLD TO STATE INSTITUTIONS, AND CITY OF WARWICK
YEAR ENDED SEPTEMBER 30, 1961

1960-1961	STATE INSTITUTIONS				CITY OF WARWICK				Average Gallons per Day	
	S.S. 50,767 Sockanosset Rd. Cranston	S.S. 24,215A East St. Cranston	Total Gallons per Month	Average Gallons per Day	S.S. 47,269 Petta-conssett Cranston	S.S. 47,475 Pawtuxet Bridge Cranston	S.S. 61,515 Oaklawn Avenue Cranston	S.S. 61,780 Dresden Street Cranston		Total Gallons per Month
	12"x5.50" Venturi Meter	8" Tri-Prot. Meter	Gallons per Month		10" Tri-Protectus Meter	6" Tri-Comp. Meter	6" Tri-Protectus Meter	6" Tri-Protectus Meter		Gallons per Month
Oct.....	43,770,000	0	43,770,000	1,411,935	63,524,716	1,809,750	3,812,475	5,396,850	74,543,791	2,404,638
Nov.....	42,520,000	2,925	42,522,925	1,417,431	67,419,416	1,734,000	4,223,325	4,300,875	77,677,616	2,589,254
Dec.....	40,249,000	2,775	40,251,775	1,288,444	63,560,300	117,750	3,994,575	4,616,025	74,288,650	2,396,408
Jan.....	36,281,000	450	36,281,450	1,170,369	69,693,200	.....	4,029,112	5,776,425	79,500,737	2,564,540
Feb.....	30,500,000	1,875	30,501,875	1,089,353	66,957,900	.....	4,029,112	4,040,625	75,027,637	2,679,558
Mar.....	32,410,000	225	32,410,225	1,045,491	66,657,700	.....	4,115,925	4,247,350	75,021,175	2,420,038
Apr.....	33,051,000	43,200	33,094,200	1,103,140	65,123,800	.....	3,575,625	4,827,300	73,526,725	2,450,891
May.....	38,159,000	11,175	38,170,175	1,231,296	75,252,800	.....	4,616,100	6,681,075	86,549,975	2,791,935
June.....	40,379,000	37,800	40,416,800	1,347,227	96,183,276	1,474,500	7,565,100	15,211,300	120,433,376	4,014,446
July.....	35,488,000	7,275	35,495,275	1,145,009	98,286,990	3,495,750	8,989,200	21,887,775	132,659,715	4,279,346
Aug.....	43,511,000	23,400	43,534,400	1,404,335	114,441,600	2,982,000	9,885,075	19,772,250	147,080,925	4,744,546
Sept.....	40,012,000	14,475	40,026,475	1,334,216	99,877,618	1,782,000	5,648,175	8,956,350	116,264,143	3,875,471
For Year ...	456,330,000	145,575	456,475,575	1,250,618	948,980,316	13,395,750	64,483,799	105,714,600	1,132,574,465	3,102,544

TABLE 36
WATER SOLD TO EAST SMITHFIELD WATER COMPANY AND
KENT COUNTY WATER AUTHORITY
YEAR ENDED SEPTEMBER 30, 1961

1960- 1961	EAST SMITHFIELD WATER COMPANY				KENT COUNTY WATER AUTHORITY			
	S.S. 51,198 Waterman Street No. Prov.	S.S. 52,403 Dean Avenue Smithfield	Total	Average	S.S. 58,985 Oaklawn Avenue Cranston	S.S. 60,757 Purification Works Scituate	Total	Average
	12" Tri-Crest Meter	8" Tri-Crest Meter	Gallons per Month	Gallons per Day	12" Tri-Crest Meter	12" Venturi Meter	Gallons per Month	Gallons per Day
	Gallons per Month	Gallons per Month	Month	Day	Gallons per Month	Gallons per Month	Month	Day
Oct.....	3,669,000	3,238,500	6,907,500	222,823	3,642,000	25,226,000	28,868,000	931,226
Nov.....	6,378,848	3,324,000	9,702,848	323,428	3,803,250	23,471,000	27,274,250	909,142
Dec.....	5,952,000	3,145,500	9,097,500	293,468	3,707,250	28,333,000	32,040,250	1,033,556
Jan.....	6,398,250	3,510,750	9,909,000	319,645	5,061,750	31,737,000	36,798,750	1,187,056
Feb.....	6,051,750	3,168,750	9,220,500	329,304	4,907,250	29,956,000	34,863,250	1,245,116
Mar.....	6,354,000	3,218,250	9,572,250	308,782	5,231,250	28,635,000	33,866,250	1,092,460
Apr.....	6,014,250	2,827,500	8,841,750	294,725	4,942,500	26,709,000	31,651,500	1,055,050
May.....	6,410,250	3,438,750	9,849,000	317,710	5,935,500	27,073,000	33,008,500	1,064,790
June.....	6,071,250	4,212,000	10,283,250	342,775	7,267,500	27,699,000	34,966,500	1,165,550
July.....	4,940,250	3,921,750	8,862,000	285,871	8,048,250	29,426,000	37,474,250	1,208,847
Aug.....	6,816,750	4,932,000	11,748,750	378,992	8,463,750	27,723,000	36,186,750	1,167,315
Sept.....	5,723,250	4,250,250	9,973,500	332,450	6,039,000	19,754,000	25,793,000	859,767
For Year...	70,779,848	43,188,000	113,967,848	312,241	67,049,250	325,742,000	392,791,250	1,076,140

TABLE 37
AVERAGE DAILY CONSUMPTION OF WATER PER MONTH IN MILLION GALLONS

Year Ending Sept. 30	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
1877.....	.....	.....	.....	2.27	2.26	1.84	2.25	2.53	2.94	2.91	2.76	3.01	2.537
1878.....	2.61	2.22	2.30	2.16	2.15	2.20	2.32	2.85	2.89	3.88	3.12	3.17	2.66
1879.....	2.84	2.39	2.38	2.82	2.93	2.59	2.38	3.22	3.48	3.78	3.52	3.32	2.97
1880.....	3.38	2.89	2.97	2.94	2.86	2.90	2.96	3.68	5.05	4.18	3.92	3.82	3.46
1881.....	3.67	3.35	3.22	3.54	4.07	3.13	2.98	3.54	3.81	4.05	4.46	4.16	3.66
1882.....	3.92	3.60	3.38	3.30	3.27	3.06	3.05	3.24	4.02	4.69	5.09	3.84	3.70
1883.....	3.40	3.33	3.65	3.94	3.74	3.91	3.43	3.82	4.64	5.24	5.18	4.70	4.08
1884.....	3.81	3.67	3.58	4.24	3.87	3.90	3.43	3.79	4.70	4.38	4.06	4.82	4.02
1885.....	4.24	3.67	3.99	4.48	4.73	4.80	4.10	4.10	5.44	5.56	5.01	4.92	4.59
1886.....	4.37	4.20	4.71	4.82	4.75	4.83	4.33	4.53	4.93	6.02	4.88	4.94	4.78
1887.....	4.62	4.24	4.94	5.06	4.90	4.84	4.41	4.90	5.16	5.58	5.00	5.08	4.89
1888.....	4.80	4.40	5.10	5.44	5.79	5.39	4.86	4.84	6.17	6.51	5.87	5.32	5.37
1889.....	5.34	5.18	5.51	5.72	7.34	5.80	5.27	5.75	6.14	5.69	5.59	5.52	5.74
1890.....	5.41	5.17	6.14	6.34	6.79	6.28	6.64	6.60	6.90	8.11	7.13	6.72	6.54
1891.....	6.28	6.08	6.83	6.35	6.53	6.72	6.67	7.55	7.75	7.73	7.78	7.57	6.99
1892.....	7.53	7.32	7.69	7.65	7.83	7.62	7.27	6.77	8.37	9.30	9.11	8.63	7.92
1893.....	8.00	7.65	8.48	9.30	8.85	8.74	8.07	8.58	9.92	10.78	10.50	9.48	9.03
1894.....	8.79	7.85	8.61	9.11	9.07	9.09	8.73	9.97	11.28	12.39	10.76	10.22	9.66
1895.....	10.20	8.86	9.08	9.02	9.82	8.60	7.70	8.78	9.49	8.99	9.50	9.10	9.10
1896.....	8.15	8.19	9.56	10.19	8.79	8.74	8.60	9.26	9.64	9.93	9.70	8.83	9.13
1897.....	8.49	8.05	8.98	8.83	8.52	8.44	8.06	8.27	8.90	9.13	8.70	9.07	8.62
1898.....	8.76	8.29	8.63	8.56	9.09	8.68	8.38	8.35	10.04	10.10	9.44	9.84	9.01
1899.....	8.94	8.75	9.64	9.45	9.53	8.91	8.52	9.18	11.18	10.21	10.12	9.70	9.51
1900.....	9.15	9.27	9.53	9.81	9.49	9.66	9.23	8.59	10.48	12.11	10.95	11.71	10.00
1901.....	9.99	9.54	9.95	10.09	10.52	10.20	8.92	10.05	11.50	12.02	11.69	11.15	10.47
1902.....	10.91	10.70	11.02	11.65	11.00	10.92	10.52	10.48	11.85	12.09	11.97	11.66	11.23
1903.....	11.89	11.81	12.85	12.84	12.62	11.92	12.33	13.92	13.02	13.54	12.91	13.76	12.78
1904.....	13.09	13.89	13.49	14.29	14.58	13.42	12.07	12.72	13.94	14.21	13.18	13.85	13.56
1905.....	14.57	14.88	14.60	14.20	14.65	13.88	13.85	14.77	15.06	16.34	14.30	13.99	14.59
1906.....	13.73	14.96	14.63	15.00	15.07	14.77	14.49	15.01	15.69	15.08	15.74	16.06	15.02
1907.....	15.02	14.37	14.25	15.74	16.24	16.26	15.62	16.29	17.18	18.50	18.00	15.02	16.04
1908.....	15.34	15.13	15.34	15.46	16.07	15.21	14.53	14.67	16.63	16.77	15.42	15.62	15.52
1909.....	15.83	15.80	15.44	15.16	14.87	14.88	13.94	14.04	15.54	17.71	16.15	14.80	15.35
1910.....	14.76	14.66	15.28	15.62	15.65	15.22	14.74	14.72	15.53	17.13	15.95	15.61	15.40
1911.....	15.56	14.98	16.11	16.39	16.27	16.00	15.30	16.19	17.09	19.36	17.09	16.08	16.37
1912.....	16.29	16.49	16.44	18.12	18.14	17.16	16.39	16.70	17.32	20.54	17.62	17.06	17.36
1913.....	17.36	16.72	17.17	17.49	17.98	17.59	17.06	17.12	18.95	19.55	18.40	17.12	17.71
1914.....	16.76	16.87	17.27	17.83	18.52	17.60	16.99	17.43	20.24	17.62	17.09	18.51	17.73
1915.....	17.29	16.43	17.27	17.07	17.60	17.44	16.80	16.68	18.04	16.49	16.76	17.80	17.14
1916.....	16.90	17.03	17.79	18.16	18.47	18.37	17.43	17.57	17.82	17.90	16.58	18.76	17.75
1917.....	18.51	18.08	18.50	19.73	20.62	19.31	18.09	17.67	18.28	19.61	20.03	18.76	18.93
1918.....	18.62	18.71	20.64	23.82	22.98	23.07	22.43	22.31	21.85	22.23	21.50	20.63	21.56
1919.....	20.42	20.31	21.04	21.72	20.94	19.35	19.45	19.60	21.77	20.70	20.40	20.68	20.53
1920.....	20.62	20.18	21.64	23.80	23.16	23.03	20.67	20.45	20.98	21.06	21.58	21.89	21.59
1921.....	21.41	20.46	20.97	21.64	21.43	20.77	20.21	20.92	22.84	21.18	21.63	22.86	21.36
1922.....	22.84	22.16	22.18	24.14	23.64	22.01	21.64	21.49	22.18	21.91	22.11	22.52	22.40
1923.....	22.78	23.23	23.08	23.66	24.96	23.84	22.95	24.12	24.49	23.90	24.08	24.31	23.78
1924.....	24.68	24.09	23.33	24.19	24.58	23.44	23.51	23.28	24.10	25.11	22.48	22.51	23.78
1925.....	22.84	23.70	23.76	24.22	23.61	22.70	23.13	23.03	24.82	23.54	23.20	23.81	23.53
1926.....	23.41	22.47	23.29	23.95	24.12	24.25	23.36	22.80	24.16	24.80	23.94	23.53	23.67
1927.....	21.76	22.60	23.24	22.92	22.41	22.57	22.32	22.68	23.62	23.27	22.27	23.27	22.74
1928.....	23.37	22.99	22.39	23.04	22.80	23.21	22.79	23.83	23.05	24.31	26.69	25.38	23.65
1929.....	26.82	25.54	26.17	26.84	27.01	25.42	23.05	22.91	25.73	26.53	24.94	24.24	25.43
1930.....	23.83	24.24	24.29	23.85	24.88	23.34	23.38	25.15	26.85	26.81	25.95	27.45	25.00
1931.....	26.30	24.04	23.80	23.71	24.36	23.64	23.11	23.76	25.35	26.20	26.22	26.31	24.73
1932.....	25.36	23.42	23.82	23.20	23.23	22.99	22.72	23.47	25.27	25.34	25.16	24.59	24.05
1933.....	24.15	23.65	23.51	24.00	24.25	24.01	23.41	25.32	26.92	28.77	27.65	26.00	25.14
1934.....	24.89	24.43	25.04	25.55	28.05	26.38	24.78	25.78	27.95	31.00	28.77	26.39	26.58
1935.....	26.50	25.39	25.16	26.35	27.06	26.31	25.71	27.02	27.47	29.47	31.14	28.23	27.15
1936.....	29.45	28.03	27.42	27.97	28.73	26.44	25.75	27.02	30.27	30.23	30.79	29.23	28.44
1937.....	27.94	26.72	27.06	25.77	26.13	27.16	25.73	25.93	28.45	31.43	31.85	29.18	29.79
1938.....	27.84	26.42	25.57	25.11	24.67	24.38	23.56	24.56	27.13	26.34	28.82	28.34	26.07
1939.....	27.90	27.21	26.85	27.07	27.62	27.16	26.25	27.48	30.84	32.81	35.62	30.31	28.77
1940.....	30.12	28.96	28.26	28.74	28.06	27.23	25.77	26.15	28.49	30.10	31.57	28.96	28.54
1941.....	29.55	27.86	28.36	28.67	29.02	28.78	29.07	29.91	31.74	32.87	32.66	33.78	30.19
1942.....	32.74	31.44	31.84	31.34	31.21	29.84	29.18	29.76	31.34	32.13	32.14	32.11	31.26
1943.....	29.88	29.27	30.40	29.93	30.67	30.35	30.05	29.65	35.13	36.35	35.47	33.71	31.74
1944.....	31.87	31.25	32.35	32.29	32.52	32.95	31.51	34.27	36.80	39.10	40.60	35.43	34.26
1945.....	33.77	32.77	33.33	34.89	34.57	33.78	33.37	33.23	35.44	35.73	36.34	34.67	34.32
1946.....	32.74	32.27	33.21	34.01	33.69	33.80	33.64	33.59	36.70	40.70	35.92	36.69	34.75
1947.....	36.37	35.34	35.58	35.95	35.83	35.01	33.27	33.94	35.72	37.35	39.34	39.21	36.08
1948.....	38.91	36.19	35.55	34.84	37.31	36.92	36.15	33.95	36.90	39.33	41.55	39.76	37.28
1949.....	36.27	35.34	35.11	33.98	34.00	33.88	33.12	35.12	46.65	44.56	40.18	35.77	37.01
1950.....	34.61	35.94	34.51	33.92	34.34	34.71	33.39	34.90	40.27	43.27	41.40	38.24	36.64
1951.....	39.96	36.91	34.80	36.10	35.92	34.81	34.21	37.21	39.31	43.49	39.68	38.20	37.59
1952.....	36.92	34.79	33.63	34.20	34.59	33.98	33.98	34.33	41.21	54.79	40.66	40.11	37.78
1953.....	37.09	35.75	35.27	34.59	33.95	34.20	34.61	35.63	50.68	46.76	43.63	43.95	38.86
1954.....	38.20	35.43	35.03	34.85	35.63	35.31	35.10	35.05	45.09	45.27	40.72	39.22	37.92
1955.....	39.84	37.82	37.17	37.24	38.42	37.85	37.00	41.54	44.52	49.90	47.08	42.25	40.91
1956.....	40.29	38.30	38.18	38.42	39.31	38.37	38.55	40.08	49.50	44.93	48.86	41.70	41.38
1957.....	40.78	38.65	36.74	39.14	38.43	36.98	38.50	44.48	60.45	57.12	48.16	45.16	43.74
1958.....	42.22	38.27	38.42	39.09	38.20	37.40	40.03	38.60	42.57	45.05	43.60	41.63	40.44
1959.....	40.35	38.01	39.35	39.34	39.46	38.65	39.04	44.02	45.05	45.16	51.33	47.28	42.27
1960.....	41.93	40.00	39.63	39.48	40.19	39.72	40.34	42.06	51.75	49.75	49.49	45.57	43.33
1961.....	42.22	42.53	40.99	41.24	43.54	42.26	41.00	42.96	51.71	51.06	52.80	50.01	45.19

†Average for 9 months.

TABLE 38

**FINANCIAL STATEMENT OF THE PROVIDENCE
WATER SUPPLY BOARD FOR THE YEAR
ENDED SEPT. 30, 1961**

REVENUE

Water Rents	\$2,758,603.26
Hydrant Rental	92,625.65
Electric Power	25,539.48
Setting Meters	4,713.00
Repairing Meters	1,580.66
Rents from Non-Operating Property.....	798.25
Repairs to Water Services.....	757.32
Repairs to Distribution Mains.....	927.77
Repairs to Hydrants.....	301.67
Installation of New Fire Supplies.....	3,599.00
Installation of New Water Services.....	72,796.00
Installation of New Water Mains.....	125,378.13
Revolving Fund—Water Meters.....	10,388.30
Sale of Scrap Iron, Brass, Lead, Etc.....	7,654.98
Sale of Lumber, Pulpwood, Etc.....	700.48
Sale of Obsolete Equipment.....	26.74
Sale of Material	313.82
Sundries	3,078.40
Total Revenue	<u>\$3,109,782.91</u>

DISBURSEMENTS

OPERATING EXPENSE:

Salaries	\$782,296.38
Services Other Than Personal.....	96,657.90
Materials and Supplies.....	245,187.36
Special Items	12,783.25
Capital Outlay	59,121.93
Other Structures and Improvements (Water Main Extensions).....	199,894.59
Taxes	346,546.03
Employees' Retirement System.....	67,642.00
Social Security F.O.A.S.I.	22,753.21
Total Operating Expense.....	<u>*\$1,832,882.65</u>
Interest on Bonds.....	570,000.00
Depreciation and Extension Fund.....	350,000.00
Payable to Sinking Fund.....	** 356,900.26
Total Disbursements	<u>\$3,109,782.91</u>
Gross Water Rents.....	\$2,838,890.28
Minus Refunds (Current Year) ..	80,238.37
Minus Refunds (Prior Year) ..	48.65
Net Water Rents.....	<u>\$2,758,603.26</u>

*See Table 39 for detailed account of Operating Expense.

**Subject to change due to anticipated discounts on Outstanding Commitments.

TABLE 39
WATER SUPPLY BOARD OPERATING EXPENSES
FOR THE YEAR ENDED SEPT. 30, 1961

ADMINISTRATIVE

Salaries:	
001 Officials	\$20,495.73
Clerical—Chief Engineer's Office.....	3,325.72
Clerical—Accounting	37,227.89
Engineering	46,747.05
Labor—General	10,279.54
008 Sick Leave Payrolls.....	4,328.70
009 Vacation Payrolls	6,084.38
Total	\$128,489.01
Services Other Than Personal:	
102 Expert Consultant and Other Service	
Fees	\$ 20.00
109 Fees Not Otherwise Classified.....	30.00
111 Telephone and Telegraph.....	2,018.64
112 Postage, Freight and Express.....	48.50
115 Transportation of Persons—Conventions..	12.05
117 Travel Subsistence—Conventions	136.12
121 Printing, Binding and Reproduction Services	1,553.77
131 Light and Power.....	1,692.02
141 Repairs—Office Machinery	604.06
142 Repairs—Automobiles	692.37
146 Repairs—Plant Equipment	8.00
150 Repairs—Structures and Improvements..	56.08
151 Maintenance and Servicing.....	273.61
181 Laundry and Cleaning.....	106.00
183 Dues and Subscriptions.....	175.70
199 Miscellaneous Services	9,134.95
Total	\$16,561.87
Outstanding Commitments	Nil
Total—Services Other Than Personal.....	\$ 16,561.87
Materials and Supplies:	
201 Stationery and Office Supplies.....	\$ 1,712.76
202 Small Tools and Shop Supplies.....	142.88
211 Motor Fuel	721.87
212 Lubricants	21.85
213 Tires and Tubes.....	221.54
214 Repair Parts and Supplies—Trucks and Autos	197.28
222 Repair Parts and Supplies—Plant Equipment	32.83
229 Repair Parts and Supplies—Other Equipment	9.70
241 Fuel	849.46
244 Housekeeping Supplies and Minor Equipment	88.43
252 Seeds, Fertilizer, Trees and Shrubs.....	31.85
259 Other Agricultural, Horticultural and Landscaping Supplies	31.21
266 Lumber and Hardware	21.36
267 Paint and Painters' Supplies.....	2.94
268 Plumbing and Electrical Supplies.....	66.48
299 Miscellaneous Materials and Supplies...	82.42
Total	\$ 4,234.86
Outstanding Commitments	168.14
Total—Materials and Supplies	\$ 4,403.00
Special Items:	
350 Blue Cross and Physicians Service	\$ 2,355.60
Total	\$ 2,355.60

Capital Outlay:

501 Office Furniture, Machinery and Equipment	\$ 499.00	
502 Books, Maps and Charts	291.91	
511 Automobiles	2,194.00	
541 Medical, Surgical and Laboratory Equipment	136.50	
Total	\$ 3,121.41	
Outstanding Commitments	6.95	
Total—Capital Outlay	\$ 3,128.36	
Total—Administrative	\$ 154,937.84	

SOURCE OF SUPPLY

Hydro Electric Station:

Salaries:

001 Labor—Operation	\$ 8,580.81	
Repairs—Structures and Improvements	11.41	
Repairs—Machinery and Equipment	147.51	
Care of Grounds	274.12	
Total	\$ 9,013.85	

Services Other Than Personal:

111 Telephone and Telegraph	\$ 124.42	
146 Repairs—Plant Equipment	91.64	
151 Repairs—Machinery and Equipment	339.77	
199 Miscellaneous Services	154.65	
Total	\$ 710.48	

Materials and Supplies:

201 Stationery and Office Supplies	\$ 267.99	
222 Repair Parts and Supplies—Plant Equipment	32.40	
241 Fuel	167.96	
268 Plumbing and Electrical Supplies	13.03	
Total	\$ 481.38	

Water Purification Plant:

Salaries:

001 Supervision	\$10,601.41	
Labor—Operation	44,470.34	
Technical	22,477.77	
Clerical—Laboratory	3,678.37	
Repairs—Machinery and Equipment	554.00	
Repairs—Care of Grounds and Buildings	901.45	
Total	\$ 82,683.34	

Services Other Than Personal:

102 Expert Consultant and Other Service Fees	\$ 10.00	
111 Telephone and Telegraph	1,044.84	
112 Postage, Freight and Express	149.58	
115 Transportation of Persons—Conventions	36.05	
117 Travel Subsistence—Conventions	28.25	
121 Printing and Binding	31.50	
141 Repairs—Office Machinery	62.76	
142 Repairs—Trucks and Autos	35.74	
146 Repairs—Plant Equipment	3,270.22	
150 Repairs—Structures and Improvements	32.85	
151 Maintenance and Servicing	1,444.46	
181 Laundry and Cleaning	268.83	
183 Dues and Subscriptions	9.55	
199 Miscellaneous Services	55.20	
Total	\$ 6,479.83	

Materials and Supplies:

201 Stationery and Office Supplies	\$ 538.07
202 Small Tools and Shop Supplies	67.78
204 Wearing Apparel and Personal Supplies..	61.74
212 Lubricants	16.59
213 Tires and Tubes	35.48
214 Repair Parts and Supplies—Trucks and Autos	237.93
222 Repair Parts and Supplies—Plant Equipment	3,321.98
229 Repair Parts and Supplies—Other Equipment	8.40
231 Ferric Sulphate	29,086.51
231 Lime	18,166.28
231 Chlorine	3,743.26
231 Sodium Silicofluoride	14,634.95
231 Miscellaneous Laboratory Supplies	1,053.66
241 Fuel	4,309.39
244 Housekeeping Supplies	523.63
252 Seeds, Fertilizer, Trees and Shrubs	77.84
259 Other Agricultural, Horticultural and Landscaping Supplies	2.45
264 Fabricated Cement Products	19.60
266 Lumber and Hardware	137.68
267 Paint and Painters' Supplies	8.40
268 Plumbing and Electrical Supplies	667.90
269 Construction and Maintenance Materials and Supplies Not Otherwise Classified	19.05
272 Valves and Fittings	14.02
299 Miscellaneous Materials and Supplies	272.68
Total	\$ 77,025.27

Special Items:

302 Liability Insurance	\$ 55.90
Total	\$ 55.90

Capital Outlay:

541 Medical, Surgical and Laboratory Equipment	\$ 250.50
561 Shop and Plant Equipment	5,667.38
Total	\$ 5,917.88

Scituate Reservoir:

Salaries:

001 Labor—Operation	\$ 3,760.07
Repairs—Care of Grounds	9,341.78
Total	\$ 13,101.85

Services Other Than Personal:

102 Expert Consultant and Other Service Fees	\$ 10.00
111 Telephone and Telegraph	146.80
142 Repairs—Trucks and Autos	201.57
Total	\$ 358.37

Materials and Supplies:

213 Tires and Tubes	\$ 172.34
214 Repair Parts and Supplies—Trucks and Autos	173.55
252 Seeds, Fertilizer, Trees and Shrubs	1,340.59
Total	\$ 1,686.48

Capital Outlay:

511 Automobiles	\$ 1,163.00
Total	\$ 1,163.00

Other Reservoirs:

Salaries:

001 Labor—Operation	\$ 3,739.52
Repairs—Care of Grounds	63.36
Total	\$ 3,802.88

Services Other Than Personal:	
106 Examining Titles	\$ 134.00
142 Repairs—Trucks and Autos.....	137.21
Total	\$ 271.21
Materials and Supplies:	
213 Tires and Tubes.....	\$ 75.11
214 Repair Parts and Supplies—Trucks and Autos	128.66
Total	\$ 203.77
Capital Outlay:	
511 Automobiles	\$ 1,163.00
Total	\$ 1,163.00

Forestry and Maintenance:

Salaries:	
001 Supervision	\$ 4,892.50
Labor—Operation	2,093.20
Repairs—Care of Grounds.....	6,149.20
Total	\$ 13,134.90

Services Other Than Personal:	
102 Expert Consultant and Other Service Fees \$	180.00
111 Telephone and Telegraph.....	42.09
112 Postage, Freight and Express.....	4.65
117 Travel Subsistence—Conventions	13.21
142 Repairs—Trucks and Autos.....	221.65
143 Repairs—Construction and Other Automotive Equipment	116.42
183 Dues and Subscriptions.....	9.00
199 Miscellaneous Services	13.00
Total	\$ 600.02

Materials and Supplies:	
201 Stationery and Office Supplies.....	\$ 25.30
202 Small Tools and Shop Supplies.....	332.60
204 Wearing Apparel and Personal Supplies	96.38
213 Tires and Tubes.....	128.97
214 Repair Parts and Supplies—Trucks and Autos	153.95
229 Repair Parts and Supplies—Other Equipment	129.70
241 Fuel	252.38
244 Housekeeping Supplies and Minor Equipment	36.90
252 Seeds, Fertilizer, Trees and Shrubs.....	535.65
259 Other Agricultural, Horticultural and Landscaping Supplies	529.93
266 Lumber and Hardware.....	60.37
267 Paint and Painters' Supplies.....	41.65
Total	\$ 2,323.78

Capital Outlay:	
502 Books, Maps and Charts.....	\$ 5.88
571 Agricultural and Landscaping Equipment	175.82
Total	\$ 181.70

General:

Salaries:	
001 Clerical	\$ 1,334.57
Labor—Operation	4,780.01
Repairs—Machinery and Equipment....	43.21
Repairs—Care of Grounds.....	13,762.73
Repairs—Gates and Valves.....	17.52
Repairs—Care of Grounds—Rockland Cemetery	528.14

008 Sick Leave Payrolls.....	3,625.91	
009 Vacation Payrolls.....	6,240.20	
023 Injured Employees' Payrolls.....	667.20	
Total		\$ 30,999.49
Services Other Than Personal:		
109 Fees Not Otherwise Classified.....	\$ 31.00	
142 Repairs—Trucks and Autos.....	309.37	
Total		\$ 340.37
Materials and Supplies:		
202 Small Tools and Shop Supplies.....	\$ 196.59	
211 Motor Fuel	1,789.38	
212 Lubricants	247.25	
213 Tires and Tubes.....	72.42	
214 Repair Parts and Supplies—Trucks and Autos	203.09	
244 Housekeeping Supplies and Minor Equipment	43.86	
262 Cement, Plaster and Related Products..	70.07	
265 Lumber and Hardware.....	110.63	
268 Plumbing and Electrical Supplies.....	7.53	
Total		\$ 2,740.82
Special Items:		
350 Blue Cross and Physicians Service.....	\$ 2,215.20	
Total		\$ 2,215.20
Outstanding Commitments — Services Other Than Personal	220.28	
Outstanding Commitments Materials and Supplies	15,152.04	
Outstanding Commitments—Capital Outlay...	22,818.00	
Total—Source of Supply		\$ 294,845.09

TRANSMISSION AND DISTRIBUTION

Pumping Station:

Salaries:		
001 Labor-Operation	\$18,969.56	
Total		\$ 18,969.56
Services Other Than Personal:		
102 Expert Consultant and Other Service Fees	\$ 5.00	
109 Fees Not Otherwise Classified.....	103.79	
111 Telephone and Telegraph.....	420.84	
131 Light and Power	19,892.62	
146 Repairs-Plant Equipment	452.66	
151 Maintenance and Servicing	381.11	
181 Laundry and Cleaning	45.00	
199 Miscellaneous Services	18.00	
Total		\$ 21,319.02
Materials and Supplies:		
201 Stationery and Office Supplies.....	\$ 150.82	
211 Motor Fuel	478.18	
214 Repair Parts and Supplies—Automotive or Construction Equipment.....	28.84	
222 Repair Parts and Supplies—Plant Equipment	45.71	
241 Fuel	673.18	
259 Other Agricultural, Horticultural and Landscaping Supplies	5.06	
268 Plumbing and Electrical Supplies.....	170.00	
272 Valves and Fittings	12.00	
299 Miscellaneous Materials and Supplies...	21.22	
Total		\$ 1,585.01

Pipe Lines:

Salaries:

001	Supervision	\$ 5,969.80
	Clerical	6,149.50
	Labor—Operation	123,834.10
	Repairs—Trucks and Autos	8,907.25
	Repairs—Care of Grounds and Buildings	7,752.10
	Repairs—Transmission Mains	2,294.13
	Repairs—Distribution Mains	9,863.38
	Repairs—Gates and Valves	18,151.52
	Repairs—Hydrants	7,344.52
	Repairs—Services	12,644.04
	New Work—Distribution Mains	499.90
	New Work—Gates and Valves	4,899.85
	New Work—Hydrants	15,738.81
	New Work—Services	42,873.27
	New Work—Meters (Emergency)	1,581.91
	Retirement Work—Transmission Mains	245.14
	Retirement Work—Distribution Mains	464.44
	Retirement Work—Gates and Valves	784.40
	Retirement Work—Hydrants	233.94
	Retirement Work—Services	4,880.18
	Total	\$275,112.18

Services Other Than Personal:

102	Expert Consultant and Other Service Fees	\$ 186.00
109	Fees Not Otherwise Classified	46.50
111	Telephone and Telegraph	423.42
112	Postage, Freight and Express	76.62
131	Light and Power	693.13
141	Repairs—Office Machinery	49.02
142	Repairs—Trucks and Autos	1,128.77
143	Repairs—Construction and Other Automotive Equipment	620.98
149	Repairs—Other Equipment	51.61
151	Maintenance and Servicing	299.33
153	Repairs—Street Openings	10,951.40
163	Rental—Other Equipment	421.20
163	Rental of Land	273.00
199	Miscellaneous Services	824.65
	Total	\$ 16,045.63

Materials and Supplies:

201	Stationery and Office Supplies	\$ 556.52
202	Small Tools and Shop Supplies	2,297.37
204	Wearing Apparel and Personal Supplies	1,041.22
211	Motor Fuel	4,678.33
212	Lubricants	389.92
213	Tires and Tubes	458.65
214	Repair Parts and Supplies—Trucks and Autos	3,549.37
229	Repair Parts and Supplies—Other Equipment	90.23
231	Medical, Chemical and Laboratory Supplies	307.69
232	Pharmaceuticals	7.90
241	Fuel-Kerosene Oil	316.75
244	Housekeeping Supplies and Minor Equipment	194.36
259	Other Agricultural, Horticultural and Landscaping Supplies	10.46
261	Gravel, Sand and Stone	213.34
262	Cement, Plaster and Related Products	346.77
264	Fabricated Cement Products	59.50
265	Fabricated Metal Products	48.21
266	Lumber and Hardware	709.79
267	Paint and Painters' Supplies	344.75

268	Plumbing and Electrical Supplies.....	4,089.36	
269	Construction and Maintenance Materials and Supplies Not Otherwise Classified	14.08	
271	Pipe-Cast Iron	2,652.14	
271	Pipe-Service	7,947.68	
271	Pipe-Asbestos Cement	1,484.50	
271	Pipe—Other	63.06	
272	Hydrants, Valves and Fittings.....	67,390.23	
272	Gates and Valves	23,327.16	
279	Water System Materials and Supplies Not Otherwise Classified	5.72	
299	Miscellaneous Materials and Supplies...	417.05	
	Total		\$123,012.11
Special Items:			
331	Payment of Claims and Damages.....	\$ 493.15	
	Total		\$ 493.15
Capital Outlay:			
501	Office Furniture, Machinery and Equip- ment	\$ 318.52	
502	Books, Maps and Charts.....	18.95	
512	Trucks and Tractors.....	15,349.03	
521	Construction and Engineering Equip- ment	7,526.24	
591	Equipment Not Otherwise Classified ...	495.00	
	Total		\$ 23,707.74
Other Structures and Improvements:			
721	New Main Extensions.....	\$199,894.59	
	Total		\$199,894.59
Distribution Reservoirs:			
Services Other Than Personal:			
111	Telephone and Telegraph.....	\$ 120.00	
131	Light and Power	38.95	
	Total		\$ 158.95
Materials and Supplies:			
252	Seeds, Fertilizer, Trees and Shrubs....	\$ 44.83	
	Total		\$ 44.83
General:			
Salaries:			
001	Labor—Operation	\$ 5,549.15	
	Repairs—Structures and Improvements..	1,484.89	
	Repairs—Trucks and Autos.....	477.05	
	Repairs—Machinery and Equipment....	71.03	
008	Sick Leave Payrolls.....	7,984.04	
009	Vacation Payrolls	11,508.25	
025	Injured Employees' Payrolls.....	2,762.05	
	Total		\$ 29,836.46
Services Other Than Personal:			
181	Laundry and Cleaning	\$ 106.00	
199	Miscellaneous Services	36.00	
	Total		\$ 142.00
Materials and Supplies:			
231	Medical, Chemical and Laboratory Sup- plies	\$ 2.65	
241	Fuel	669.93	
244	Housekeeping Supplies and Minor Equip- ment	81.68	
266	Lumber and Hardware.....	98.02	
	Total		\$ 852.28

Special Items:

350 Blue Cross and Physicians Service.....	\$ 4,492.80	
Total		\$ 4,492.80
Outstanding Commitments—Services Other Than Personal		25.00
Outstanding Commitments—Materials and Supplies		1,719.46
Total—Transmission and Distribution.....		\$ 717,410.77

METERING

Salaries:

001 Supervision	\$ 9,534.43
Clerical	52,738.37
Labor—Operation	38,661.31
Repairing Meters	13,466.76
Removing and Setting Meters.....	19,037.71
Testing Meters	4,533.01
Inspection—Services	3,782.80
General—Operation	17,588.53
008 Sick Leave Payrolls	9,358.78
009 Vacation Payrolls	8,332.90
025 Injured Employees' Payroll	118.26
Total	\$177,152.86

Services Other Than Personal:

102 Expert Consultant and Other Service Fees	\$ 10.00
109 Fees Not Otherwise Classified.....	24.00
111 Telephone and Telegraph.....	1,905.30
112 Postage, Freight and Express.....	772.20
116 Transportation of Persons, Carfares.....	905.10
131 Light and Power	1,692.00
141 Repairs—Office Machinery, Furniture and Furnishings	1,164.82
142 Repairs—Trucks and Autos	838.88
151 Maintenance and Servicing.....	401.01
181 Laundry and Cleaning.....	106.00
199 Miscellaneous Services	25,605.56
Total	\$ 33,424.87

Materials and Supplies:

201 Stationery and Office Supplies.....	\$ 2,077.84
202 Small Tools and Shop Supplies.....	494.10
204 Wearing Apparel and Personal Supplies..	424.93
211 Motor Fuel	2,184.00
212 Lubricants	118.61
213 Tires and Tubes	399.85
214 Repair Parts and Supplies—Trucks and Autos	802.14
221 Repair Parts and Supplies—Office Machinery	12.91
231 Medical, Chemical and Laboratory Supplies	74.26
241 Fuel	560.57
244 Housekeeping Supplies and Minor Equipment	342.02
252 Seeds, Fertilizer, Trees and Shrubs	26.82
259 Other Agricultural, Horticultural and Landscaping Supplies	50.96
266 Lumber and Hardware	7.87
267 Paint and Painters' Supplies.....	5.59
268 Plumbing and Electrical Supplies.....	419.03
271 Pipe—Miscellaneous	17.15
272 Valves and Fittings	214.25
274 Meter Parts	5,275.23
Total	\$ 13,508.13

Special Items:

331 Payment of Claims and Damages..... \$ 35.00
350 Blue Cross and Physicians Service..... 3,135.60

Total \$ 3,170.60

Capital Outlay:

501 Office Furniture, Machinery and Equip-
ment \$ 543.25

Total \$ 543.25

Outstanding Commitments Services Other
Than Personal Nil

Outstanding Commitments—Materials and
Supplies 449.00

Outstanding Commitments—Capital Outlay... 499.00

Total—Metering \$ 228,747.71

Taxes 346,546.03

Employees' Retirement System..... 67,642.00

Social Security F.O.A.S.I. 22,753.21

TOTAL—OPERATING EXPENSE..... \$1,832,882.65

TABLE 40
STATEMENT OF REVENUE—ESTIMATED AND ACTUAL
FOR THE YEAR ENDED SEPTEMBER 30, 1961

Account	Estimated Revenue	Actual Revenue
Water Rents	\$2,550,000.00	\$2,758,603.26
Hydrant Rental	88,000.00	92,625.65
Electricity	22,000.00	25,539.48
Stores Account (Meters)	8,000.00	10,388.30
Repairing and Setting Meters	6,500.00	6,293.66
Fire Supplies and Miscellaneous Repairs	4,200.00	5,585.76
New Service Installations	70,000.00	72,796.00
New Main Extensions	110,000.00	125,378.13
Rentals	1,000.00	798.25
Other Miscellaneous Receipts	11,100.00	11,774.42
Total	\$2,870,800.00	\$3,109,782.91

TABLE 41
SUMMARY OF ANNUAL WATER WORKS REVENUES
1930-1961

Fiscal Years Ended Sept. 30	Receipts From Sale of Water	Misc. Receipts	Total
1930.....	\$1,384,369.54	\$218,844.87	\$1,603,214.41
1931.....	1,414,836.00	237,172.64	1,652,008.64
1932.....	1,375,450.77	223,058.31	1,598,509.08
1933.....	1,345,444.69	212,066.79	1,557,511.48
1934.....	1,387,876.73	184,133.47	1,572,010.20
1935.....	1,409,269.47	237,518.68	1,646,788.15
1936.....	1,427,881.10	265,357.71	1,693,238.81
1937.....	1,429,107.08	229,317.39	1,721,424.47
1938.....	1,426,986.49	106,359.70	1,533,346.19
1939.....	1,491,918.63	124,901.37	1,616,820.00
1940.....	1,551,917.24	115,540.98	1,667,458.22
1941.....	1,615,351.79	114,960.58	1,730,312.37
1942.....	1,679,058.50	103,368.22	1,782,426.72
1943.....	1,629,268.35	86,580.98	1,715,849.33
1944.....	1,761,016.12	87,946.71	1,848,962.83
1945.....	1,812,311.82	99,271.44	1,911,583.26
1946.....	1,808,993.17	123,247.90	1,932,241.07
1947.....	1,877,471.18	124,372.47	2,001,843.65
1948.....	2,005,242.58	222,419.41	2,227,661.99
1949.....	2,031,633.37	229,317.72	2,260,951.09
1950.....	2,082,814.82	199,061.80	2,281,876.62
1951.....	2,078,209.84	214,868.70	2,293,078.54
1952.....	2,053,427.76	322,761.07	2,376,188.83
1953.....	2,093,625.85	343,477.23	2,437,103.08
1954.....	2,146,947.18	302,707.38	2,449,654.56
1955.....	2,166,180.84	379,010.13	2,545,190.97
1956.....	2,236,331.86	371,715.61	2,608,047.47
1957.....	2,262,879.80	322,948.62	2,585,828.42
1958.....	2,273,583.77	318,752.87	2,592,336.64
1959.....	2,255,865.23	374,493.67	2,630,358.90
1960.....	2,528,805.97	330,120.32	2,858,926.29
1961.....	2,758,603.26	351,179.65	3,109,782.91

TABLE 42
STATEMENT OF WATER WORKS
DEPRECIATION AND EXTENSION FUND

	Investment	Cash	Due from Other Funds	Total
Balance Sept. 30, 1960.....	\$413,000.00	\$ 598.91	\$134,000.00	\$547,598.91
Increase During Year Ended Sept. 30, 1961.....	112,000.00	397,851.73	.....	.....
Disbursements During Year Ended Sept. 30, 1961.....	167,000.00	310,000.00	134,000.00	.....
Accounts Receivable Year Ended Sept. 30, 1961.....	.....	.....	350,000.00	.....
Balance Sept. 30, 1961.....	\$358,000.00	\$ 88,450.64	\$350,000.00	\$796,450.64

TABLE 43
STATEMENT OF WATER SUPPLY BOARD BONDS OUTSTANDING AND
SINKING FUND REQUIREMENTS ON A 3% BASIS
AS OF SEPTEMBER 30, 1961

Bonds Payable from Sinking Fund	Rate of Int. %	Year of		Bonds		Sinking Fund Requirements On a 3% Basis
		Issue	Maturity	Issued	Outstanding	
Water Supply.....	4½	1922	1962	\$1,000,000.00	\$1,000,000.00	\$ 977,157.80
" ".....	4	1922	1962	2,000,000.00	2,000,000.00	1,939,945.64
" ".....	4	1932	1962	1,000,000.00	1,000,000.00	957,595.27
" ".....	4	1922	1962	2,500,000.00	2,500,000.00	2,350,373.42
" ".....	4½	1924	1964	2,000,000.00	2,000,000.00	1,790,360.48
" ".....	4	1924	1964	1,500,000.00	1,500,000.00	1,296,547.96
" ".....	4	1925	1965	2,500,000.00	2,500,000.00	2,113,708.85
" ".....	4	1928	1968	1,500,000.00	1,500,000.00	1,120,159.84
Total Water Supply Debt and Sinking Fund Requirements.....					\$14,000,000.00	\$12,545,849.26
Sinking Fund Assets Allocated to Water Supply Debt per City Controller's Report on Sinking Fund Sept. 30, 1961 (Includes \$356,900.26 *Water Operating Balance for Year Ended Sept. 30, 1961 plus Prior Year Adjustments of \$159.32 or a total of \$357,059.58).						\$12,786,077.63
Amount of Surplus of Requirements on 3% Basis.....						\$ 240,228.37

*Subject to change due to anticipated discounts on Outstanding Commitments, see Table No. 39.

TABLE 44

A SUMMARY OF INVENTORIES OF PERSONAL PROPERTY
AT SEPTEMBER 30, 1961

REMOVABLE PROPERTY INVENTORY.....		\$149,537.01
SOURCE OF SUPPLY:		
Hydro-Electric Station	\$ 7,538.72	
Purification Works	44,011.74	
Laboratory	1,426.49	
General	5,469.34	
	<hr/>	58,446.29
TRANSMISSION AND DISTRIBUTION:		
Pipe Lines	\$130,719.07	
Pumping Stations	335.40	
Garage	6,817.68	
	<hr/>	137,872.15
METERING.		43,938.11
SUPPLIES.		5,330.23
		<hr/>
Total Personal Property Inventory.....		\$395,123.79

TABLE 45

STATEMENT OF STORES REVOLVING FUND
FOR THE YEAR ENDED SEPT. 30, 1961

Cash Balance Sept. 30, 1960.....		\$ 10,000.00
Outstanding Commitments Sept. 30, 1960.....		33,903.60
Receipts—Oct. 1, 1960 to Sept. 30, 1961.....		87,332.20
		<hr/>
Total Available		\$131,235.80
Disbursements Sept. 30, 1961.....	\$103,657.10	
Outstanding Commitments Sept. 30, 1961.....	7,190.40	
Transferred as Income to General Fund.....	10,388.30	
	<hr/>	
Total Disbursements		\$121,235.80
Cash Balance Sept. 30, 1961.....		\$ 10,000.00

TABLE 46

RECONSTRUCTION OF OAKLAWN AVENUE

Transferred from Depreciation and Extension Fund January 13, 1960.....		\$15,000.00
Disbursements—Sept. 30, 1960.....	\$14,447.73	
Less Refund by State of Rhode Island May 16, 1961.....	442.31	
	<hr/>	
Disbursements Sept. 30, 1961.....	\$14,005.42	
Transferred to Depreciation and Extension Fund Sept. 30, 1960	552.27	
Transferred to Depreciation and Extension Fund Sept. 30, 1961	442.31	
	<hr/>	
Total Disbursements		15,000.00
Cash Balance Sept. 30, 1961 (Account Closed).....		\$ NIL

TABLE 47

STATEMENT OF THE MISCELLANEOUS WATER
MAIN EXTENSIONS ACCOUNT
FOR THE YEAR ENDED SEPTEMBER 30, 1961

Transferred from Depreciation and Extension Fund—July 29, 1957.....	\$ 15,000.00	
Transferred from Depreciation and Extension Fund—July 15, 1958.....	50,000.00	
Transferred from Depreciation and Extension Fund—May 21, 1959.....	60,000.00	
Transferred from Depreciation and Extension Fund—July 7, 1961.....	35,000.00	
Total Available		\$160,000.00
Disbursements Sept. 30, 1961.....	\$131,892.40	
Outstanding Commitments Sept. 30, 1961.....	NIL	
Total Disbursements		131,892.40
Cash Balance Sept. 30, 1961.....		\$ 28,107.60

TABLE 48

STATEMENT—ACCOUNT FOR INSERTING NEW VALVES

Transferred from Depreciation and Extension Fund—May 12, 1958.....	\$ 10,000.00	
Transferred from Depreciation and Extension Fund—May 13, 1959.....	30,000.00	
Transferred from Depreciation and Extension Fund—July 7, 1961.....	65,000.00	
Total Available		\$105,000.00
Disbursements Sept. 30, 1961.....	\$35,088.93	
Outstanding Commitments Sept. 30, 1961.....	52,187.00	
Total Disbursements		87,275.93
Cash Balance Sept. 30, 1961.....		\$ 17,724.07

TABLE 49

ADDITIONS, ALTERATIONS, AND IMPROVEMENTS
AT THE WATER PURIFICATION WORKS

Authorized Bond Issue (Chapter 102, P. L. of R. I. 1959) Approved May 27, 1959—Acc't. 3-91.....	\$1,100,000.00	
Authorized Bond Issue (Chapter 102, P. L. of R. I. 1959—Reforestation Garage) Approved May 27, 1959—Acc't. 3-92.....	300,000.00	
Transferred from Depreciation and Extension Fund June 15, 1960—Acc't. 3-93	550,000.00	
Income from Deposits for Plans Not Returned.....	75.00	
Total Available		\$1,950,075.00
Disbursements—Sept. 30, 1961—Acc't. 3-91.....	\$695,935.96	
Outstanding Commitments—Sept. 30, 1961—Acc't. 3-91.....	394,096.22	
Disbursements—Sept. 30, 1961—Acc't. 3-92.....	15,304.64	
Outstanding Commitments—Sept. 30, 1961—Acc't. 3-92.....	274,589.78	
Disbursements—Sept. 30, 1961—Acc't. 3-93.....	547,162.45	
Outstanding Commitments—Sept. 30, 1961—Acc't. 3-93.....	2,837.55	
Total Disbursements		1,929,926.60
Unexpended Balance of Authorized Bond Issue.....		\$ 20,148.40

TABLE 50

**NEW 40-MILLION GALLON WATER DISTRIBUTION
RESERVOIR**

Authorized Bond Issue (Chapter 103, P. L. of R. I. 1959) Approved May 27, 1959	\$2,150,000.00
Transferred from "Construction of New Aqueduct Reservoir Account" Closed Sept. 30, 1959	49,759.28
Income from Deposits for Plans Not Returned	150.00
Total Available	\$2,199,909.28
Disbursements—Sept. 30, 1961	\$1,525,171.11
Outstanding Commitments—Sept. 30, 1961	373,254.73
Total Disbursements	1,898,425.84
Unexpended Balance of Authorized Bond Issue	\$ 301,483.44

TABLE 51

LAND PURCHASE AT BARDEN RESERVOIR

Transferred from Depreciation and Extension Fund February 23, 1961	\$17,000.00
Disbursements—(Purchase of John Nemczuk Property)	16,000.00
Cash Balance Sept. 30, 1961	\$ 1,000.00

TABLE 52

STATEMENT—PITOMETER SURVEY ACCOUNT

Transferred from Depreciation and Extension Fund March 14, 1961	\$15,000.00
Disbursements—Sept. 30, 1961	\$7,513.91
Outstanding Commitments—Sept. 30, 1961	NIL
Total Disbursements	7,513.91
Cash Balance Sept. 30, 1961	\$ 7,486.09

TABLE 53

TAXES PAID TO VARIOUS CITIES AND TOWNS
(OCTOBER 1, 1960 TO SEPTEMBER 30, 1961)

LOCATION OF PROPERTY	LAND AREA (ACRES)	ASSESSED VALUATIONS			Total	TAX	
		Land	Bldgs. & Imp.			Rate per \$100	Amount Paid
City of Warwick.....	0.06	\$ 160.00	0	160.00	\$2.90	\$ 4.64	
City of Cranston.....	110.19	28,220.00	942,340.00	970,560.00	3.40	32,999.04	
Town of Foster.....	1,994.28	119,900.00	0	119,900.00	3.00	3,597.00†	
Town of Gloucester.....	73.30	14,630.00	0	14,630.00	4.08	596.90	
Town of Johnston.....	103.13	38,330.00	292,670.00	331,000.00	3.00	9,930.00	
Town of No. Providence.....	3.58	19,920.00	155,080.00	175,000.00	3.90	6,825.00	
Town of Scituate.....	13,182.24	.....	.....	.....	.....	292,263.75*
Total Real Estate.....	15,471.78	.....	.....	.....	.....	\$346,216.33†**

†An additional \$276.90 was paid to the Town of Foster when the Neuenzauk property was acquired.
*Three equal payments of \$70,446.25 were made on \$6,790,000.00 total assessed valuation @ \$4.15 per \$100 tax rate. A fourth payment of \$80,923.00 was made on \$8,300,000.00 total assessed valuation @ \$3.90 per \$100 tax rate.
**In addition to this amount, \$32.80 was paid to the West Gloucester Fire District.

TABLE 54
SUMMARY OF STATISTICS
PROVIDENCE WATER SUPPLY BOARD

FOR THE YEAR ENDED SEPT. 30, 1961

PROVIDENCE*	PROVIDENCE	RHODE ISLAND
(City or Town)	(County)	(State)

GENERAL STATISTICS

Population of Providence (1960 Federal Census).....	207,498
Estimated population supplied in suburbs.....	175,636
Total population supplied.....	383,134
Date of Construction.....	1870-76; 1915-28; 1935; 1938-40; 1954
By whom owned.....	City of Providence
Source of Supply.....	Surface water collected in Scituate Reservoir and five smaller reservoirs on north branch of Pawtuxet River.
Available storage capacity of six impounding reservoirs.....	39,746 m.g.
Mode of supply.....	83.0% by gravity; 17.0% by pumping

STATISTICS OF CONSUMPTION OF WATER

1. Estimated population supplied	383,134
2. Total raw water influent for the year, gallons	18,300,080,000
3. Average daily raw water influent, gallons	50,140,000
4. Raw water consumption per capita, gallons daily	130.9
5. Total consumption for the year, gallons	16,495,897,000
6. Total registration on customers' meters, gallons	15,370,134,000
7. Percentage of consumption accounted for on customers' meters	93.18%
8. Average daily consumption, gallons	45,194,238
9. Per capita consumption, gallons daily	118.0
10. Gallons per day to each tap	740
11. Cost of supplying water, per million gallons, based on operating and maintenance expense	\$79.43
12. Cost of supplying water, per million gallons, based on operating and maintenance expense plus fixed charges	\$135.20

FILTRATION

1. Type of filters	Rapid Sand
2. Number of filter units	14
3. Capacity of filter plant	14 units @ 7.5=105 m.g.d.
4. Chemicals used	Ferri-Floc, Quicklime, Chlorine and Sod. Silicofluoride
5. Total water filtered during year, gallons	16,611,322,000
6. Average quantity filtered per day, gallons	45,510,000
7. Total filtered water delivered to the distribution system during the year, gallons	16,495,987,000

*Supplying Providence, Cranston, Johnston, and portions of North Providence, Warwick, Smithfield, Coventry and West Warwick.

TABLE 54 (Continued)
SUMMARY OF STATISTICS
PROVIDENCE WATER SUPPLY BOARD
FOR THE YEAR ENDED SEPT. 30, 1961
STATISTICS RELATING TO DISTRIBUTING SYSTEM
MAINS*

1. Kind of Pipe	Asbestos-Cement, Cast Iron, Steel and Concrete
2. Sizes	From 6 to 66 inches
3. Installed	42,535.33 feet
4. Removed	13,774.60 feet
5. Net increase	28,760.73 feet
6. Total now in use	753.59 miles
7. Number of leaks per mile	0.07
8. Length of pipes less than 6 inches in diameter	0
9. Number of hydrants installed	206
10. Number removed	140
11. Net increase	66
12. Number of hydrants now in use	4,422
13. Number of stop gates installed	134
14. Number removed	65
15. Net increase	69
16. Number of stop gates now in use	10,326
17. Number of stop gates smaller than 6 inches	0
18. Range of pressure on mains	14 to 95 pounds

HIGH PRESSURE FIRE SERVICE

Kind of Pipe	Cast Iron
Sizes	6, 8, 12, 16 and 24 inches
Installed	222.80 feet
Removed	0 feet
Net increase	222.80 feet
Total now in use	12.87 miles
Number of hydrants installed	11
Number removed	11
Net increase	0
Number of hydrants now in use	161
Number of stop gates installed	1
Number removed	0
Net increase	1
Number of stop gates now in use	130
Number of blow-offs	0
Range of pressure on mains	94 to 130 pounds

SERVICES

19. Kind of Pipe	Lead, Copper and Cast Iron
20. Size	½ inch to 30 inches
21. Number of service taps installed	813
22. Number removed	375
23. Net increase	438
24. Number of services now in use	61,094
25. Number of meters installed	2,511
26. Number removed or condemned	2,042
27. Net increase	469
28. Number of meters now in use	60,582
29. Percentage of services metered	99.9

*Not including high pressure fire service.