CITY DOCUMENT

ANNUAL REPORT

OF THE

WATER SUPPLY BOARD

OF THE

CITY OF PROVIDENCE
RHODE ISLAND

For the Year Ended September 30, 1952

140

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REPORT

ADMINISTRATIVE OFFICE,
WATER SUPPLY BOARD
CITY OF PROVIDENCE
OCTOBER 1, 1952

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 eleventh annual report of the Water Supply Board for the year ended September 30, 1952.

On January 3, 1952 Ugo Riccio was re-appointed a mem- of the Water Supply Board for a 4-year term ending on the first Monday in January 1956.

At the re-organization meeting of the Board held on January 11, 1952 Thomas H. Driscoll was re-elected Chairman and John J. Deary was re-appointed 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

THOMAS H. DRISCOLL, *Chairman*

JOHN A. DOHERTY

EARL H. ASHLEY

UGO RICCIO

MICHAEL N. CARDARELLI, Ex-Officio

IN CITY COUNCIL
FEB 5 - 1953

READ:
WHEREUPON IT IS ORDERED THAT
THE SAME BE RECEIVED.

CLERK

REPORT OF THE CHIEF ENGINEER

Providence, R. I.
October 1, 1952

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, 1952:

New construction covering extensions to the distribution system exceeded all previous years' records when a total of 109,900.15 feet of pipe was laid. The new Southeasterly Trunk Main and its connecting mains contributed to this total by 22,076.46 feet, leaving 86,823.69 feet of distribution mains laid to serve new homes and new real estate developments. All extensions were laid by outside contractors, and with the exception of one contract, group 5, where the City furnished all materials, the contractors furnished all material, labor and equipment. Exclusive of the Southeasterly Trunk Main, extensions were laid under five separate contracts totalling approximately 85,200 feet of main in 291 different streets within the area served by the City. At the end of the year, approximately 69,900 feet of main was laid under these contracts, there remaining approximately 15,300 feet contracted for and to be laid during the next fiscal year.

The backlog of main extensions which totalled 24,000 feet at the beginning of the year was reduced to 21,300 feet by the middle of November, 1951. An increase in the number of approved applications for main extensions during December, 1951, and January, 1952, increased our schedule to 31,500 feet. This amount was gradually reduced to 21,200 feet by the end of

March, 1952. During April and May, 1952, we again experienced an increase in applications which resulted in a schedule total of 34,500 feet at the end of May, 1952, the maximum for the year. This total was gradually reduced during the period, June through September 1952, and at the end of the year the backlog of main extensions totalled 17,600 feet, the lowest it has been since August, 1949.

Applications for water service totalled 1,322 during the year or 114 less than in the previous year. Of the 1,322 applications, 230 required extensions to the distribution system. Installation of new services totalled 1,351, a decrease of 93 over the previous year.

The work of constructing the Southeasterly Trunk Main connecting between Dale Avenue, Cranston, and Ernest Street at Allens Avenue in Providence began on January 21, with the jacking of the concrete casing under the main lines of the N. Y., N. H. & H. RR. near Gardner Avenue in Cranston. This project, which includes the installation of approximately 2,300 feet of 24-inch, and 19,650 feet of 30-inch prestressed reinforced concrete cylinder pipe, is under contract with the Campanella and Cardi Construction Company in the bid amount of $491,-417.50. Pipe is to be supplied by the Lock Joint Pipe Company of East Orange, N. J., and the Chapman Valve Company is furnishing the new rotary plug type valves which are being installed at key points in the main to effect more dependable control in emergencies. The crossing under the railroad was made without incident and with no interruption or slowing down of train service, and deliveries of pipe and other materials followed in good sequence. With the extremely open winter months, construction proceeded almost without interruption, and at the end of the year on September 30, the contract was 93% complete which was approximately eight weeks ahead of schedule.

Experiments by the laboratory staff to determine what sizes of filter sand would produce an excellent quality of water at a maximum rate of filtration which was started in 1949 was continued throughout the year. Plant filter No. 2 which was rebuilt

with 24-inches of 0.65 millimeter sand and placed in operation on August 9, 1950 was continued in operation throughout the year, and it is planned to continue the operation of this filter for further study and tests until it is proved beyond any doubt that the coarser sand will produce a satisfactory quality of water at a higher rate of filtration. Further details of this experiment may be found under the heading "Water Purification Works Laboratory".

Under the authority of City Council Resolution No. 552 approved July 9, 1952, and subsequently approved by the cities of Cranston and Warwick, and the towns of North Providence, Johnston and Smithfield, plans and specifications were prepared for the installation of machinery and equipment required for fluoridation of our water supply.

Numerous investigations were made as to the proper and recognized safe methods for handling and feeding fluoride compounds, and it was decided, due to the toxic nature of these materials, to handle and feed the chemicals in a dust tight conveying and feeding system thereby reducing the hazards of personal contact to the absolute minimum. Accordingly, five separate contracts were entered into as follows:

Fluoride Feeder by Omega Machine Co., Providence, R. I., in the amount of $4,935.00; Pneumatic Conveying System, by Holly Pneumatic Systems, Inc., New York, N. Y., in the amount of $6,370.00; Piping by Hart Engineering Co., Providence, R. I., in the amount of $2,850.00; Electrical Work by Crawford Electric Co., Pawtucket, R. I., in the amount of $2,745.00; Electric Fork Lift Truck, by Lewis Shephard Co., Providence, R. I., in the amount of $3,098.70. The installation of the feeding and conveying equipment was done by the department's maintenance force, and the total amount of contracts awarded for equipment was $19,998.70.

On August 14, a test run of the completed installation was made in the presence of Dr. James F. Colgan, President of the Rhode Island Dental Society, Dr. Thomas W. Clune, State Pub-

lic Health Dentist, and members of the press, which satisfactorily demonstrated all operations of the fluoride handling and treatment process. On September 2, the system was placed in continuous operation, to feed fluorides in amounts required to make the total fluoride content of the treated water at 1.0 p.p.m.

The entire cost of the installation plus the annual cost of chemicals will be subdivided under the following plan: Providence 79.36%, Cranston 13.2%, Warwick 4.27%, North Providence 1.57%, Johnston 1.0% and Smithfield 0.6%.

The new sound film in color photography, entitled "You Can't Live Without It," was introduced by the Water Supply Board and was given the first showing to members of the City Government and the various department heads at a dinner in the Crown Hotel on Monday evening, April 14.

This film was produced by Pro-Motion Pictures, Inc., a local advertising agency, and is a 16 MM, twenty-minute pictorial review of the complete operations of the department. It describes generally the source, collection, treatment, transmission and distribution, pumping, maintenance and servicing, metering, billing, and reforestation operations of the department against the background of pleasing natural color. The general interest features intended to convey to the public the magnitude and complexity of a large public water supply, have met with a most favorable and gratifying response. At the end of the year on September 30, the film had been shown to more than thirty individual groups comprising engineering, fraternal, civic, religious, and military gatherings, representing an estimated audience in excess of 1,500 people. In addition the Providence School Department is using the film continually for general educational purposes in the schools. The numerous requests for showings, which have been scheduled into the 1953 year, indicates the interest in and popularity of this release will continue for some time.

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, 1952, the actual sewer rental collection totalled $159,697.06. Of this amount, however, $13.36 of the previous year's collection was refunded, making a net total of $159,683.70 collected this fiscal year.

At the end of the year, the automotive equipment owned and in use by the department totalled 25 various trucks, 17 passenger cars including 2 Jeeps; 1 back hoe shovel, 1 bulldozer, and other miscellaneous pieces of construction equipment. The records of the department indicate that during the year trucks were operated a total of 39,082 truck hours at a cost, including depreciation, of 68.0 cents per hour; passenger cars were driven a total of 213,242 miles at a cost of 5.7 cents per mile. The policy of installing main extensions by private contractors under competitive bidding as adopted in March 1951 by the Water Supply Board, numerous pieces of heavy equipment no longer needed by the department were declared surplus. This equipment, including a trench hoe shovel, bulldozer, gas tank truck, hoist truck and a compressor truck were sold under sealed proposals in December, 1951.

Under the authority of City Council Resolution No. 503 approved June 8, 1951, the City entered into an agreement with the Kent County Water Authority to deliver to the authority at or near the Water Purification Works at Scituate, water for domestic, fire and other ordinary municipal water supply purposes, the authority agreeing to build, at its own expense, the necessary pumping station, pipe lines, etc., and the City agreeing to operate the pumps, chemical feeders, valves, etc., and to provide ordinary maintenance of the equipment. This agreement dated June 15, 1951 to run for twenty years.

During the year the Authority installed approximately 6,162 feet of 16-inch cement-asbestos pipe from the Water Purification Works to their covered reservoir on Seven Mile Line Road, Cranston, 4,557 feet of which was laid through city property in a right of way granted by the City. Up to September 30, 1952 no water was delivered to the Authority from the Water Purifi-

cation Works, no work having been done on the installation of the pumping station. The extreme drought and high temperatures experienced in July, and the resulting high consumption of water, created a shortage of water in the Oaklawn Section of the Authority's System. To alleviate that shortage a temporary connection on Oaklawn Avenue, Cranston, between the Providence System and the Authority's System was made on August 3, 1952, and at the end of the year a total of 5,031,000 gallons of water was delivered to the Authority at this point, or at an average of 88,263 gallons per day. Necessary gates were closed to prevent any mixture between the two systems.

The Engineering Staff has been engaged in the preparation of various specifications, preparing estimates and plans for extensions to the distribution system and the usual problems pertaining to the operation and maintenance of water works structures and equipment. Other work included real estate surveys, inventories and appraisals, consumer demands in respect to service requirements and proper size meters, inspection of water pipe installations for the existence of cross connections, observing and conducting flow tests at various points in the distribution system, compiling pertinent data and records, etc.

Other duties included attention to water works property in the various communities served by the system outside the City of Providence, in connection with tax valuations and assessments, which are shown on Table 52 of the appendix.

SOURCE OF SUPPLY

SCITUATE WATERSHED—RAINFALL AND RUNOFF

The rainfall on the 92.8 square mile Scituate Watershed tributary to the Gainer Dam was measured as usual by gages at Rocky Hill, Hopkins Mills, North Scituate, Westcott District, and Gainer Dam. The rainfall for the year ended September 30, 1952 totalled 55.41 inches, 7.99 inches above the 36-year (1915-1951) long term average of 47.42 inches, equivalent to 116.8% of the average.

The rainfall for the year was well distributed, the longest period during which no rainfall was recorded occurring from July 11, 1952 through July 30, 1952. The longest period of rainfall occurred during the period, August 4, 1952 to August 10, 1952, both inclusive, when a total of 4.20 inches was recorded with a maximum during this period of 1.34 inches on August 10th, and a minimum of 0.02 inches on August 7th.

During the months of October, 1951 through February, 1952 and for the months of April, May and August, the monthly rainfall exceeded the 36-year average for their respective months; the maximum monthly rainfall occurring in November, 1951, when 9.64 inches was recorded. This rainfall for the month of November exceeded the 36-year monthly average of 4.54 inches by 5.10 inches. The maximum daily rainfall occurred during this month when a total of 2.44 inches was recorded for November 2, 1951, the station at North Scituate reporting a rainfall of 3.00 inches. The minimum monthly rainfall occurred during July, 1952 when 1.20 inches was recorded or 2.70 inches below the 36-year average for that month.

The runoff, or the amount of rainfall collected from the watershed, totalled 28.21 inches for the year ended September 30, 1952, 3.86 inches in excess of the 36-year long term average of 24.35 inches, indicating that 50.9% of the rainfall was collected.

During the months of October 1951, April, and June through September 1952, the monthly run-off was below the 36-year average for their respective months, the maximum deficiency of 1.12 inches occurring during the month of July 1952. The maximum monthly run-off occurred in March 1952 when the amount collected equalled 5.02 inches or 0.31 inches above the 36-year average for that month.

Statistical rainfall and run-off information for the current year and for the duration of the watershed record may be found in Tables 1, 2, 3 and 4 of the Appendix.

SCITUATE WATERSHED

STORAGE, DRAFT AND YIELD

On October 1, 1951 the water in Scituate Reservoir was at elevation 278.54 or 5.47 feet below the spillway level, the total storage amounting to 31,240,000,000 gallons, or 84.4% of the total reservoir capacity. At the end of the year (October 1, 1952) the reservoir level was 6.25 feet below the spillway level, or at elevation 277.76, the total storage amounting to 30,460,-000,000 gallons, or 82.3% of the total reservoir capacity. From October 1, 1951 and continuing to November 1, 1951 the water level fell gradually to elevation 276.71, the minimum for the year, 7.30 feet below the spillway level with a total storage amounting to 29,410,000,000 gallons, or 79.5% of the total reservoir capacity. From this date to April 12, 1952 the storage level fluctuated normally with a net gain in the level to elevation 282.95 or 35,876,000,000 gallons storage representing 96.9% of capacity. Beginning April 12, the level rose steadily to the maximum for the year of elevation 285.31 on June 3, 1952 with a storage of 38,461,000,000 gallons, or 103.9% of capacity at spillway elevation. With this gain, the spillway level was reached on April 29, 1952 and the storage level remained above spillway elevation to June 28, 1952, fluctuating gradually downward to elevation 277.76 at the end of the year.

On October 1, 1951 the combined storage in all reservoirs on the watershed, including Regulating, Westconnaug, Barden, Moswansicut, Ponaganset and Scituate Reservoirs, amounted to 35,199,000,000 gallons, or 85.3% of the total capacity; and at the end of the year (October 1, 1952) the storage was 34,377,000,000 gallons, or 83.3% of combined total capacity. The maximum combined storage during the year was 42,646,000,000 gallons, 103.3% of total capacity, on May 24, 1952. The minimum during the year was 33,448,000,000 gallons, 81.0 of combined total capacity, on November 1, 1951.

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

The total draft from the watershed for the year was 46,327,-360,000 gallons, or an average of 126,580,000 gallons per day. The draft for water supply purposes was 14,789,000,000 gallons, or an average of 40,410,000 gallons per day; and the discharge to the river totalled 31,538,360,000 gallons, equal to 86,170,000 gallons per day. The discharge to the river was released during hours and at rates most advantageous for the use of mills on the Pawtuxet River below Scituate Dam.

The yield from the Scituate watershed for the year was 45,505,360,000 gallons, or an average of 124,330,000 gallons per day; 2,245,902 gallons per day less than the total draft, and 16,810,000 gallons per day in excess of the 36-year (1916-1951) average.

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

SCITUATE WATERSHED

FORESTRY OPERATIONS

The year 1952 has exhibited further important progress in forest management of the woodlands operated by the Water Supply Board for protecting the source of supply.

The watershed area lies within the eastern hardwood region and is characterized by a predominance of white, black, and red oaks, with a scattering of white ash, red maple and hickory forming the forest cover. It would appear that the area originally supported extensive stands of white pine. However, fire, hurricanes and poor cutting practices in the past, have practically eliminated the natural pine stands. Almost all of the watershed has been cut over, and it is obvious that the hardwood stands will not begin to produce lumber for another forty years. Since we are confronted with large areas of young stands, both hardwood and softwood, forestry practices will tend toward timber stand improvement as to species and quality in hardwood stands, and toward an intensive thinning program and release operations in the pine plantations. The principal yield of this forest area will be pulpwood and cordwood until the natural hardwood stands and pine plantations have reached a size where profitable sawtimber yields may be anticipated.

The primary problem of forest management will be the building up of growing stock in hardwoods, and the maintenance of an even rate of growth in the pine plantations. As far as soils are concerned, Providence County lies in the glacial region of the northeastern United States. The soils have developed under a forest cover and are largely derived from materials accumulated through glacial action and deposited by receding glaciers as till or by the melting glacier as outwash.

The soils on the reservation can be divided roughly into two classifications:

(1) Soils developed largely from granitic material

(2) Droughty soils of the kames

Of the two, the upland soils developed from glacial till are by far the more productive from a forestry standpoint, and excellent hardwood and pine growth is observed on these soils. The soils of the kames present another problem as these are characterized by a low moisture holding capacity and high leaching.

It has been found that white pine plantations on the kame soils are subject to very intensive weevil damage, with the attack reaching 100% of the stand in many cases and rendering the wood largely useless from a sawtimber standpoint. Red pine on the same area will exhibit fairly good growth, and present plans call for open field planting with red pine.

It is impossible to sufficiently emphasize the fact that tree requirements must be matched with the ability of the soil to supply these requirements. Trees not adapted to the site upon which they are planted will exhibit slow growth and will be subject to extreme disease and insect attack, due to their low vigor. Such mismatching of tree to site will also result in the production of only the lower grade forest products, such as pulpwood, due to the fact that the stand is characterized by deformed, unhealthy trees which in most cases will never produce high grade sawtimber.

The initial 1925 plantings of red and white pine have now reached a stage of development whereby additional thinning operations are necessary if a satisfactory rate of growth is to be maintained. Over the past two years, an intensive thinning program has been initiated, which has resulted in the production of over 2,100 tons of pine pulpwood. Returns from this program are approximately $10.00 per acre.

It has been observed that the 25-year old pine plantations are carrying between 30 and 40 cords per acre. By removing approximately 8 cords per acre, the stand is being benefited by reduction of light and root competition and the removal of poor form, low quality trees. The trees to be removed are marked by the Water Supply Board Forester on the basis of tree form, vigor and spacing. Volume removal is usually limited to no more than ⅓ of the total volume of the stand, and in many cases it is less than the stated one-third. It is better to make a series of light thinnings every 5 years, rather than heavy thinnings which would not allow another cutting operation until 10 to 15 years later. The ideal thinning leaves a maximum number of

trees per acre which can completely utilize the available supplies of moisture and mineral nutrients.

Thinning methods on the watershed usually fall into two categories:

(1) In alternate row red and white pine plantations, it is usually necessary to remove the white pine almost completely, due to the more rapid growth of the red pine; accompanied by heavy weeviling of the white pine which kills the white pine leaders and allows the red pine to overtop and suppress the white.

(2) In pure stands of red or white pine, tree marking is entirely on the basis of form, vigor and spacing on a selective basis.

It is interesting to note that the pulpwood contractors prefer to work a selectively marked stand, rather than a row marking operation. In the latter, the accumulation of slash in the row causes considerable difficulty in the removal of pulpwood by present methods. A selectively marked stand gives more freedom of movement throughout the stand, rather than containing them between two unbroken rows of trees.

The year 1952 has seen the initiation of the forestry practice of clearcutting hardwoods to release a good understory of white pine. This is a reasonable practice wherever pine of sufficient size and stocking occurs as an understory, and on soil that will grow good pine. In most cases hardwood of low quality and vigor is removed in order to make way for a crop which can better utilize the site and is more valuable economically. Clearcutting hardwood over pine has provided 315.5 cords of hardwood during the past fiscal year.

Marketing problems are a major concern due to market unstability and low price. In spite of poor markets we have been able to sell over 2,100 tons of pine pulpwood and 343.5 cords of hardwood in the past two years.

In addition to pulpwood and cordwood, it was deemed advisable to try to develop markets for other products of the land. To date we have established three other markets which, although using small quantities at present, possess the potentialities of absorbing, at a profit, material which otherwise would not be utilized. The first of these is the product of roadside pine and spruce prunings. Formerly the slash was chipped or burned in order to effect disposal. At the present time a private operator has been located who uses these branches for Christmas decorations. Although the market exists only during the winter months, the past year 404 bales of evergreen boughs were disposed of, and the future outlook is for an annual production of from 1,000 to 2,000 bales.

Another small market capable of absorbing quantities of otherwise unusable material is that of witchhazel brush. The past year 60 tons of this material was removed on a "stumpage sale" basis at a profit. Witchhazel sprouts very readily, and it is anticipated that the areas worked last winter will be available for cutting again in ten years.

The third market is concerned with the swamps which are an integral part of any watershed. In many cases swamps which do not support trees will have a very dense cover of sphagnum moss. This moss is very desirable for nursery work and is also used by florists. The sphagnum in the swamps is sold by the swamp, with the contractor furnishing the labor for removal. One swamp has already been operated and others will be worked over in the future. Since the harvesting removes only the tops, it is anticipated that they can be worked every five years. Returns from this moss culture will probably not exceed $20.00 per acre.

Area and Yield

		Pulpwood		
52 Acres	780 Tons	15 Tons/Acre	$8.98/Acre	$467.12
		Cordwood		
15 Acres	315.5 Cords	21 Cords/Acre	$21.00/Acre	$315.50

Miscellaneous Income

Evergreen Boughs	$404.00
Sphagnum Moss	$35.00
Witchhazel Brush	$91.00

Hardwood sprouting is the major problem confronting the Water Supply Board in its efforts to beautify and maintain the forested roadsides on the Scituate watershed. During the past 26 years roadside maintenance has been dependent in its entirety on hand labor with axes, brush hooks and brush scythes. This method has provided only temporary control over the hardwood brush. With the advent of the spring growing season the beautified area, which had presented a clean, neat appearance during the winter months, promptly becomes an unkempt wilderness of sprouting hardwood stumps. These stump sprouts grow with extreme rapidity and it is necessary to carry out repetitive maintenance at two-year intervals. Such a procedure is extremely expensive and still does not control the brush.

The past few years have seen extensive research directed towards the solution to the problem of brush control and it is the consensus of opinion that the cheapest most efficient method of brush control will be by chemical means. We have now established experimental plots to determine the most efficient chemical, the proper rate of application and cost data. Results of this work will appear in a later report.

In the field of fire protection we suffered a rather serious loss on April 17, 1952. 15 acres of pine plantation on Riverview Fire Lane were destroyed by fire. Of this 15 acres, 6 acres was in 25-year-old plantation. This 6 acres was salvaged within 3 weeks of the fire and resulted in 200 tons of pine pulpwood which was sold at a profit. The fire occurred on a Class 4 day and was started by a fisherman. Excellent work on the part of the local fire companies held our loss at an absolute minimum.

We have further improved our fire protection system by adding 3 miles of woods roads to our fire lane system. In addition to the woods road program, we have completely mapped all fire

lanes, numbered the road entrances and distributed a detailed map of the fire protection system to all local volunteer fire companies.

The year 1952 marked the first Eastern Larch plantation to be established in the State of Rhode Island. Larch is an excellent pulpwood and lumber producing species and has been planted on the reservation as part of our experimental planting project to determine what tree species may be grown successfully in Rhode Island. In addition to the larch, 10,000 white spruce and 20,000 red pine seedlings were planted at an 8′ x 8′ spacing.

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 281 days for a total of 4,280 hours. Power generated from the discharge of 31,137,290,000 gallons through the 1875 K.V.A. Hydro-Electric Turbo Generator to the Pawtuxet River amounted to 6,463,300 kilowatt-hours or an average of 4,817.55 gallons per kilowatt hour. Of the power generated, 5,919,200 kilowatt-hours, or 91.58%, was sold to the Narragansett Electric Company, and 329,500 kilowatt-hours was used at the Water Purification Works. The rate of discharge through the station, concentrated during the hours of operation, averaged 174.60 million gallons per day.

Power 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, have been in continuous and satisfactory operation throughout the year. Water was drawn from Scituate Reservoir between elevations 213 and 220 and totalled 14,789,000,000 gal-

lons, or an average of 40,410,000 gallons per day; the maximum for any one day being 69,020,000 gallons on July 23, 1952 and the minimum 25,140,000 gallons on April 5, 1952.

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 of from four to five days, it was filtered through rapid sand filters, and finally chlorinated before being delivered into the Scituate Aqueduct leading to the water distribution system.

With the exception of a few short-period shutdowns to examine plant structures and equipment, influent flow and chemical treatment were carried on 24 hours daily to obtain a constant and unvarying degree of coagulation and filter efficiency. The Ferri-Floc Feeders and the Quicklime Feeders and Slakers are the Omega 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.

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 four pounds of water to each pound of lime.

Ferri-Floc used totalled 1,430,918 pounds, or an average of 3,910 pounds daily; with a maximum for any one day of 6,786 pounds on June 26, 1952 and a minimum of 2,208 pounds on September 27, 1952. The dosage averaged 0.68 grains per gallon, the maximum for any one day being 0.79 grains per gallon and the minimum 0.49 grains per gallon.

Quicklime used during the year totalled 1,376,441 pounds, or an average of 3,761 pounds daily; with a maximum for any one day of 7,193 pounds on July 23, 1952 and a minimum of 2,091 pounds on November 24, 1951. The lime dosage averaged 0.65 grains per gallon, the maximum for any one day being 0.96 grains per gallon and the minimum 0.51 grains per gallon.

Filters were operated a total of 73,367.22 hours during the year, at an average of 200.46 filter hours per day; the average length of filter runs being 86.72 hours which is 3.10 hours, or 3.45 per cent less than the average of 89.82 hours for the previous year. The maximum daily average of filter runs was 186.00 hours on April 17, 1952 as compared to a maximum of 171.00 hours during the previous year; and the minimum was 19.95 hours on February 15, 1952 as compared to a minimum of 51.43 hours during the previous year.

Wash water rates varied from 17 inches to 27 inches rise per minute, the rate of rise being adjusted inversely to the temperature of the wash water. Tests made each time the rise was changed showed an average sand expansion of 40%. The total wash water used was 101,448,000 gallons, an average of 277,000 gallons per day, or 115,808 gallons per wash. The 101,448,000 gallons of wash water used was 4.89% more than the 96,720,000 gallons for the previous fiscal year.

The total water filtered for the year amounted to 13,930,-236,500 gallons, an average of 38,060,700 gallons daily; the maximum day being 70,867,200 gallons on July 23, 1952, and the minimum 26,396,800 gallons on April 5, 1952. The average rate of filtration per filter was 4,560,000 gallons per day and the average amount of water filtered per filter per run was 16,-480,000 gallons, or 0.60% less than the 16,580,000 gallons for the previous year.

Plant effluent, or pure water delivered to the Scituate Aqueduct, totalled 13,828,788,500 gallons, an average of 37,783,600 gallons per day; with a maximum of 70,737,200 gallons on July 23, 1952 and a minimum of 25,977,800 gallons on April 5, 1952.

Chlorination of the plant effluent was carried on 24 hours daily. The constant chlorination was for the purpose of insuring and safeguarding the supply of pure water from any possible contamination. Plant effluent treated with chlorine amounted to 13,828,788,500 gallons, an average of 37,783,600 gallons per day.

Chlorine used during the year totalled 34,837.5 pounds, or an average of 95.2 pounds per day; with a maximum for any one day of 167.0 pounds on July 18, 1952 and a minimum of 60.0 pounds on December 9, 1951. The chlorine dosage averaged 0.30 parts per million, the maximum and minimum dosages being 0.34 and 0.24 parts per million. Chlorine residual of the water at a point adjacent to the main Aqueduct averaged 0.004 parts per million, and of the tap water at the Water Supply Board Office 0.004 parts per million.

The following statistics show that the chemical cost of treatment for the fiscal year ended September 30, 1952 was $3.17 per million gallons. This is 7.46% higher than the figure of $2.95 last year. This was due in part to a slightly higher dosage of Ferri-Floc and Quicklime and to an increase in the cost of the chemicals. The price of Ferri-Floc was increased from a low of $41.34 per ton last year to a high of $45.63 per ton this year, an increase of $4.29 per ton, or 10.38%; while the price of Quicklime increased from $16.62 per ton last year to $18.33 per ton this year, an increase of $1.71 per ton, or 10.29%. The price of chlorine has remained the same for the two years,—$0.0875 per pound.

Chemicals Used, etc.	*Year Ended Sept. 30,* 1949	*Year Ended Sept. 30,* 1950	*Year Ended Sept. 30,* 1951	*Year Ended Sept. 30,* 1952
Chlorine	0.30 P.P.M.	0.30 P.P.M.	0.37 P.P.M.	0.30 P.P.M.
Ferri-Floc	0.67 G.P.G.	0.67 G.P.G.	0.65 G.P.G.	0.68 G.P.G.
Quicklime	0.61 G.P.G.	0.61 G.P.G.	0.62 G.P.G.	0.65 G.P.G.
Length of Filter Runs	84.08 Hrs.	85.83 Hrs.	89.82 Hrs.	86.72 Hrs.
Tap Water—Color	7 P.P.M.	5 P.P.M.	5 P.P.M.	6 P.P.M.
Tap Water—Iron	0.02 P.P.M.	0.01 P.P.M.	0.01 P.P.M.	0.01 P.P.M.
Cost of Chemicals per M.G. of water treated	$2.95	$2.97	$2.95	$3.17

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 and Besthoff, Inc., New York, for the period October 1, 1951 to May 21, 1952 at $44.22 per ton; from May 22, 1952 to June 16, 1952 at $45.17 per ton and from June 17, 1952 to September 30, 1952 at $45.63 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 ($Fe_2(SO_4)_3$). 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 thirty-five per cent (35%) 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 the event that the total amount of material received falls below an average of sixty-nine per cent (69%) of water soluble Ferric Sulphate ($Fe_2(SO_4)_3$).

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 Holly 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 for 180 tons of the material; which, in addition to the 40-ton storage provided in the feeding hopper on the fifth floor of the Purification Works Head House, assures a maximum of approximately 116 average days' supply. The stored Ferri-Floc in the silo is conveyed pneumatically through a 4-inch underground conveyor pipe approximately 600 feet to the concrete feeding hopper within the Purification Works building by means of a motor-driven air blower and control equipment, housed in a single story brick building adjacent to the silo.

Analysis of the Ferri-Floc received has shown an average ferrous iron content of 1.589% which is 0.089% higher than the maximum of 1.500% allowed by the specifications. The average water soluble Ferric Sulphate ($Fe_2(SO_4)_3$) content of the eighteen deliveries received was 68.972%, or 0.028%

less than the minimum of 69% demanded by specification requirements. The average amount of material passing a 20 mesh per inch screen was 31.76%, as compared to the permissible maximum of 35%. 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*
October 10, 1951	1.229	70.537	33.33
November 6, 1951	1.888	70.938	28.20
November 28, 1951	1.530	68.978	42.86
December 21, 1951	2.290	66.533	31.25
January 4, 1952	0.938	70.981	51.51
January 14, 1952	2.178	66.057	32.40
February 6, 1952	2.089	68.175	47.10
February 27, 1952	2.111	69.219	11.90
March 26, 1952	1.865	67.021	21.62
April 16, 1952	1.921	66.502	41.94
April 18, 1952	2.033	66.860	29.73
May 22, 1952	0.815	70.540	31.87
May 26, 1952	1.039	69.498	35.00
June 17, 1952	1.095	70.938	34.18
June 17, 1952	1.016	70.662	29.17
July 9, 1952	1.508	69.860	6.67
July 22, 1952	1.407	70.143	30.88
August 4, 1952	1.653	68.063	32.05

The table shows that out of 18 deliveries received, 11 failed to meet specifications with respect to the ferrous iron content, 8 failed to meet specifications on the water soluble Ferric Sulphate content, and 4 failed to meet screen test requirements. Each time a delivery failed to meet specifications, the manufacturer was notified to this effect and requested to conform to his obligations.

Quicklime was obtained under contract with the F. D. McKendall Lumber Company, Providence, for the period October 1, 1951 to October 4, 1951 at $17.55 per ton; from October 5, 1951 to March 30, 1952 at $17.46 per ton; from March 31, 1952 to July 27, 1952 at $18.14 per ton; from July 28, 1952 to September 14, 1952 at $18.33 per ton and from September 15 to September 30, 1952 at $18.04 per ton. Specifications for the

Quicklime 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 85% 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 Available Lime shall be on an 'As Received' basis."

Analysis of the Quicklime received showed an average available Calcium Oxide (CaO) content of 92.6% which is 2.6% 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 was 100% on every delivery. 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*
October 5, 1951	93.5	100.0
November 7, 1951	92.9	100.0
December 3, 1951	94.2	100.0
December 19, 1951	93.4	100.0
January 11, 1952	84.2	100.0
February 4, 1952	94.3	100.0
February 29, 1952	95.1	100.0
March 31, 1952	94.1	100.0
July 8, 1952	92.9	100.0
July 11, 1952	90.6	100.0
July 28, 1952	*	*
August 21, 1952	92.0	100.0
September 15, 1952	93.5	100.0
September 23, 1952	92.7	100.0

The table shows that only one of the fourteen deliveries received failed to meet specification requirements showing an available Calcium Oxide content of 84.2%.

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 Holly

*No sample obtained.

Pneumatic Transfer Truck used for transporting the Ferri-Floc. There is a separate storage silo, 4-inch underground conveyor pipe, feeding hopper, motor-driven air blower and control equipment for the pneumatic handling of the Quicklime which is an exact duplicate of the pneumatic handling system used for Ferri-Floc. The Quicklime storage silo has a capacity for 180 tons of the material; which, in addition to the 40-ton storage provided in the feeding hopper on the fifth floor of the Purification Works Head House, assures a maximum of approximately 123 average days' supply.

The liquid Chlorine used to treat the water was obtained under contract from the Fields Point Manufacturing Co., Inc., Providence, for the period October 1, 1951 to September 30, 1952 at $0.0875 per pound. This material was delivered to the Purification Plant by our force in lots of 14 cylinders, each containing 150 pounds of Chlorine.

Fluoridation of the effluent water was started on September 2, 1952. All the requirements outlined by the American Water Works Association in its recommended procedure for fluoridation were fulfilled before introduction of this treatment. The City of Providence Water Supply Board is acting solely as the agents 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, the source of the fluoride ion, has been added to the effluent water in amounts sufficient to produce a concentration of 1.0 part per million throughout the distribution system.

The Sodium Silicofluride was purchased under contract from the American Agricultural Chemical Company, New York, at a price of $145.60 per ton. The first delivery was received on July 27, 1952 and consisted of 20 tons in 400-pound "Leverpak" drums. A special pneumatic system has been provided to transfer the chemical from the drums to the storage collector supplying the Fluoridizer hopper. The Fluoridizer is an Omega gravimetric type feeder equipped with a non-flooding gate to prevent any possible overtreatment. The feeder is operated automati-

cally by an electric signalling device proportional to the rate of flow of water through the effluent Venturi.

Sodium Silicofluoride used from September 2 to September 30, 1952 totalled 15,159 pounds, or an average of 523 pounds daily. The total amount of water treated was 1,151,118,000 gallons and the average applied dosage of fluoride ion was 0.95 parts per million.

Number 6 fuel oil was used for heating the plant from October 1951 to May 1952 inclusive and totalled 58,307 gallons, an average of 4,859 gallons per month. Number 2 fuel oil was used during the entire year, with the exception of February for heating water and amounted to 3,929 gallons, an average of 327 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 eight consumers' taps in various parts of the distribution system, the Water Supply Board office building in Providence 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, during the investigation of complaints, from newly laid mains, and selected locations in the distribution system.

Research work on filtration was continued throughout the year. This consisted of comparative examinations of three plant filters; filter number 2 having sand of an effective size of 0.65

millimeters; filter number 8 with sand of an effective size of 0.44 millimeters and filter number 14 with sand of an effective size of 0.48 millimeters. Number 2 filter was operated at a rate of 3 gallons per square foot per minute while filters 8 and 14 were operated at a 2.4 gallons per square foot per minute rate. Samples were obtained from the effluents of these filters at the start of each run, each morning after that and when the loss of head reached 8 feet. Glass cartridge filters containing absorbent cotton which were placed on the effluents of these filters were examined at the time of sampling to observe whether any coagulated material was passing through the sand. Determinations made on these samples included chemical and sanitary chemical tests in addition to bacteriological examinations. The total number of samples obtained from the filters was 1,928, which is 13.4% of the total number of samples obtained from all sources. Tests made on these samples totalled 13,996, or 13.5% of all the determinations made in the laboratory during the past year.

The total number of samples obtained from all sources during the year amounted to 14,348 which, based on a forty-hour work week, means that one sample or another was obtained every 8.7 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 103,251 which, based on a forty-hour work week, means that the water was receiving one test or another every 72 seconds. Each delivery of Ferri-Floc and Quicklime was tested to determine its conformance to specifications and the optimum dosages required for coagulation and pH control. Filter washings were regulated by means of tests on the sand expansion and rate of rise of wash water. Extensions to the distribution system were sterilized, and samples taken from these new mains were tested for chlorine residual, B. Coli, 37°C and 20°C bacteria.

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
300,000	180
400,000	200
1,000,000	300
2,000,000	390
5,000,000	500

The population served by the City of Providence water supply is approximately 372,000. From the above table, it may be seen that the minimum number of bacteriological samples that should be obtained from the distribution system per month for this population is 195. The actual number of bacteriological samples obtained in the distribution system for the year amounted to a total of 3,233, or an average of 269 per month, a figure 37.9% greater than recommended by the Standards and more than is required for a population of 500,000. 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.

Rigid laboratory control has resulted in the continuation of economies consistent with an excellent quality of water. Constant vigilance over and technical maintenance of the chemical treatment machinery and the filter controls have aided greatly in keeping the cost of treatment low despite increased costs of chemicals, the filter runs long, and the quality of water at a high degree of purity.

Tables 11 to 21, inclusive, 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 system of the distribution system generally above elevation 140, and to the special high pressure fire service in the congested areas of downtown Providence, have been in satisfactory operation through the year. Water pumped into the high service area totalled 2,245,680,000 gallons, or an average of 6,135,738 gallons per day. Neutaconkanut Station pumped 1,247,440,000 gallons or 3,408,306 gallons per day, and Bath Street Station pumped 998,240,000 gallons or 2,727,432 gallons per day.

The total power required for pumping at both stations amounted to 871,650 kilowatt-hours. Neutaconkanut Station required 478,800 kilowatt-hours, and Bath Street Station 392,850 kilowatt-hours. The cost of power at both stations was $14,032.53, or $6.25 per million gallons pumped.

The auxiliary gasoline engine driven pump at Neutaconkanut Pumping Station was not operated during the year, except for periodic test runs, no water being pumped. At Bath Street Pumping Station the gasoline engine driven pumps were operated a total of 172 hours and 45 minutes.

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

DISTRIBUTION RESERVOIRS

The 42 million gallon Neutaconkanut Low Service Distribution Reservoir on Neutaconkanut Hill, Johnston, and the 12-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. Work done included the extensions of mains, the installation of gate valves, hydrants and services, and making necessary repairs and replacement to the various appurtenances of the system when and where required. As was the case during the previous year, the extensive highway repairs and reconstruction program accounted for the greater part of repairs and replacements to the system.

The amount of pipe laid during the year, all sizes, totalled 109,900.15 feet, including 3,136.65 feet which replaced existing mains, and 22,076.46 feet of pipe laid in connection with the installation of the Southeasterly Trunk Main.

A total of 2,855.38 feet of pipe were removed or abandoned, resulting in a net increase to the system of 103,908.12 feet. In the City of Providence the net increase amounted to 20,276.26 feet, of which 9,340.19 feet was installed in connection with the

Southeasterly Trunk Main, and in the City of Cranston the net increase amounted to 59,583.88 feet, of which 13,562.33 feet was installed in connection with the Trunk Main. In the Town of North Providence the net increase was 16,196.51 and in the Town of Johnston 7,851.47 feet. Of the 109,900.15 feet installed, 81,359.59 feet was laid with cement-asbestos pipe, and 21,632.52 feet with pre-stressed concrete pipe, the remaining footage being laid with cast iron pipe.

At the end of the year, the total length of mains in the distribution system, all sizes, aggregated 675.36 miles, not including 12.71 miles in the special high service fire system in the City of Providence. The total amount of cement-asbestos pipe in the system at the end of the year was 384,411.92 feet, which consisted of 263,721.64 feet of 6-inch, 113,731.45 feet of 8-inch, 5,573.36 feet of 12-inch and 1,385.47 feet of 16-inch. With the exception of that portion of the Scituate Aqueduct beginning at the Siphon Chamber, which consists of 1,584 feet of 48-inch, and 8,448 feet of 66-inch steel pipe; the Neutaconkanut Conduit consisting of 715 feet of 36-inch, 15,312 feet of 48-inch, and 20,570 feet of 60-inch reinforced concrete pipe; and portions of the Southeasterly Trunk Main, which consists of 104.38 feet of 16-inch, 2,210.50 feet of 24-inch and 19,317.64 feet of 30-inch pre-stressed concrete pipe, the remaining footage is laid with cast iron pipe.

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

A total of 223 stop gates were added to the system during the year, 127 six-inch, 71 eight-inch, 15 twelve-inch, and 11 sixteen-inch which included 10 rotary plug valves installed on the Southeasterly Trunk Main. One ten-inch stop gate was removed; and 31 stop gates were replaced, 17 six-inch, 5 eight-inch, 8 twelve-inch, and 1 sixteen-inch. At the end of the year there was a total of 9,728 stop gates in the system ranging from 6-inch to 48-inch. A total of 50 six-inch hydrant gates were installed and in the City of Providence, 16 eight-inch hydrant gates were removed in conjunction with the replacement of flush hydrants

by post hydrants. Five 6-inch gates were installed on unwatering hydrants in connection with the Southeasterly Trunk Main, making a total of 27 gates on unwatering hydrants in the system at the end of the year. The total number of gates, all sizes, in use at the end of the year totalled 12,926, an increase of 262 over the previous year.

Details of gates in use on September 30, 1952 are shown in Table 28 of the Appendix.

The number of private pipes connected to the system at the end of the year totalled 384, a reduction of 12 over the previous year. In the City of Providence there was a total of 209, in Cranston 110, in Johnston 28, and 37 in North Providence. The number of services connected to these private pipes totalled 655, a decrease of 64 from the previous year. In Providence there were 321, Cranston 222, Johnston 38, and 74 in North Providence.

Statistics relative to private pipes will be found in Table 29 of the Appendix.

A total of 1,351 new services, general and fire supplies, were installed during the year; 532 in Providence, 559 in Cranston, 112 in Johnston, and 148 in North Providence. One hundred seventeen services no longer required, were removed or abandoned; 98 in Providence, 16 in Cranston, 1 in Johnston, and 2 in North Providence. Fourteen services were replaced and 75 services repaired. The number of services in the system at the end of the year was 63,457, including both general and fire supplies.

Statistics relative to service pipes installed, removed, replaced and repaired are shown in Table 30 of the Appendix.

Services in use at the end of the year were 54,711, an increase of 1,189 from the beginning of the year. The number of metered services in use at the end of the year was 54,197 as compared with 52,939 at the beginning of the year, an increase of

1,258. Unmetered services in use decreased by 49 from 563 to 514. Metered services at the end of the year constituted 99.06% of total services in use, an increase of 0.11% over the previous year.

Statistics relative to metered and unmetered services will be found in Tables 31 and 32 of the Appendix.

Public fire hydrants in use at the end of the year totalled 4,023. Flush hydrants totalled 2,578, and post hydrants 1,445. In Providence 81 flush hydrants were replaced by post hydrants, and 3 flush hydrants were abandoned. Three hundred seventy-two flush hydrants have been replaced by post hydrants since the adoption in March, 1947 of the New York Pattern Post Hydrant for installation in the system.

The replacement of flush hydrants by the post type and new installations increased the number of post hydrants in Providence from 495 to 517, and reduced the number of flush hydrants to 2,558, three flush hydrants being abandoned during the year. In Cranston the number increased by 12, and in North Providence by 7.

Statistics relative to public fire hydrants will be found in Tables 33 and 34 of the Appendix.

Leaks in the distribution and transmission mains totalled 110 during the year, 50 occurring at joints, 52 as a result of ruptured mains, and 8 at blow-offs. All of these leaks were of minor nature, causing little or no damage. Leaks at joints averaged 1 for every 13.76 miles of main, while total leaks averaged 1 for every 6.26 miles of main.

The number of meters repaired and tested in our Meter Repair Shop was 6,498, while those receiving attention in the field numbered 231, making a total of 6,729. The number repaired last year in shop and field was 5,641. The cost of meter repairs in the shop averaged $3.15 per meter as against $2.37 last year. Meters requiring servicing in the field involved an average ex-

penditure of $2.14 per meter during the current year as compared with $2.16 the previous year.

The number, make and size of meters on active services at the end of the year are shown in Table 35 of the Appendix.

CONSUMPTION

Water consumption for the entire system for the year ended September 30, 1952 amounted to 13,829,250,000 gallons or at an average of 37,780,000 gallons per day. This average daily consumption is in excess of the previous year by 190,000 gallons. The increase occurred during the months of June through September, ranging from 680,000 gallons per day in August to 11,300,000 gallons per day in July. During the remaining months the rate of consumption was less than the rate for the same months in the previous year, ranging from 230,000 gallons per day in April to 12,120,000 gallons per day in November.

On July 22, 1952 a maximum daily record was established when consumption totalled 70,000,000 gallons, exceeding the former maximum of 62,000,000 gallons of July 31, 1950. An analysis of the hourly consumption for July 22, 1952 indicated that the peak demand for that day occurred between the hours of 7 and 8 P. M., when the consumption rate was 110,400,000 gallons per day. On July 18, 1952, however, a demand of 111,360,000 gallons per day was noted between the hours of 7 and 8 P. M.

Water consumption statistics will be found in Tables 36, 37, 38 and 39 of the Appendix.

FINANCIAL SUMMARY

The gross income for the year ended September 30, 1952 totalled $2,376,188.83, an increase of $83,110.29, or 0.36% over the previous year. Revenue from the sale of water alone was $2,053,427.76, a decrease over the previous year of $24,782.08. The remaining income of $322,761.07 was received from other sources, including hydrant rentals, sale of power, installation of services, miscellaneous items, and surpluses in the Water Pipe and Meter Revolving Funds. The receipts for these items show an increase of $107,892.37 or 50.21% over the previous year. This increase is due chiefly to the increased sale of electric power and the surpluses from the Revolving Funds.

During the year total payments for water main extensions amounted to $146,701.82, an increase over the previous year of $1,145.42.

Income from service connection charges amounted to $59,393.53, an increase over the previous year of $13,819.47.

At the end of the year unpaid water bills totalled $102,618.55 as compared with $117,631.85 at the beginning of the year or 0.49% of the total net billing for the year.

Miscellaneous accounts receivable totalled $2,341.07 at the end of the year as compared with $3,149.88 at the beginning of the year.

Operating expenses for the year totalled $1,134,267.20, an increase over the previous year of $9,842.05. As in previous years the continued increase in the cost of vital materials and supplies brought about this increase.

Fixed charges this year amounted to $969,101.78 or 40.78% of gross revenue. As in previous years, the largest single item of fixed expense continues to be the interest charge on the bonded

indebtedness, which amounts to $630,000.00, equivalent to 26.51 cents per dollar of the gross income for the year.

The aggregate of all expenditures of the Board during the year totalled $2,103,368.98, which deducted from the gross revenue of $2,376,188.83 leaves a net balance of $272,819.85 to transfer to the Sinking Fund, established by law, for retiring water department bonds as they mature. In January, 1952, $1,000,000 in bonds matured, thereby reducing the net indebtedness of the Water Supply Board to $15,000,000. There will be no further reduction in the bonded indebtedness until 1956. At the end of the year the Sinking Fund balance totalled $9,247,-611.23, or $319,347.60 in excess of the amortization requirements on that date.

Financial accounts of the department, tabulation of water works property, statement of revenues, various funds, outstanding bonds, and sinking fund requirements, inventories and other statistics may be found in Tables 40 to 52 of the Appendix.

A summary of statistics of the Providence Water Supply Board for the year ended September 30, 1952, as recommended by the New England Water Works Association may be found in Table 53 of the Appendix.

Respectfully submitted,

PHILIP J. HOLTON, JR.
Chief Engineer

APPENDIX

LIST OF TABLES

TABLE

TABLE 1

MONTHLY RAINFALL IN INCHES ON SCITUATE WATERSHED

Stations on Watershed	YEAR ENDED SEPTEMBER 30, 1952													
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total	Monthly Avg.
Rocky Hill....	4.45	10.17	5.60	4.82	4.01	4.13	4.87	4.33	4.50	1.25	7.09	2.37	57.59	4.80
Hopkins Mills..	3.81	10.12	5.33	5.00	5.31	4.17	4.23	4.51	3.51	1.95	6.83	2.26	57.03	4.75
North Scituate.	4.47	9.36	5.34	4.65	5.20	3.98	4.67	3.70	3.16	0.95	7.00	2.31	54.79	4.56
Westcott	3.87	10.11	5.53	4.96	5.35	4.10	4.26	3.66	2.68	0.93	7.53	2.44	55.42	4.62
Gainer Dam ...	4.12	8.44	5.85	4.95	4.16	4.27	4.01	3.66	1.94	0.92	8.22	1.67	52.21	4.35
AVERAGE..	4.14	9.64	5.53	4.88	4.81	4.13	4.41	3.97	3.16	1.20	7.33	2.21	55.41*	4.62

*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	7.38	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	4.54	1.51	6.13	2.66	40.99	1917	43.16
1917-1918	6.71	0.48	3.23	3.56	3.73	2.15	4.56	3.12	4.49	5.13	4.14	8.79	50.09	1918	47.09
1918-1919	1.07	2.60	3.75	4.89	3.42	6.05	4.31	5.99	3.65	5.47	6.65	6.07	53.92	1919	56.42
1919-1920	2.29	5.05	2.58	3.03	6.10	4.90	6.28	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	5.45	3.73	4.30	6.80	2.97	2.53	48.30	1921	47.84
1921-1922	1.26	8.02	2.54	1.91	2.67	6.40	1.98	5.22	6.34	8.36	9.09	5.35	59.14	1922	54.76
1922-1923	2.92	1.41	3.11	6.78	1.82	3.73	5.92	1.48	4.93	2.78	2.35	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	5.28	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	2.46	2.27	1.74	3.80	3.94	1.89	43.52	1926	43.33
1926-1927	5.04	5.55	3.55	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	5.24	9.22	5.63	2.72	4.32	2.70	5.43	1.45	3.91	5.06	5.50	4.80	55.98	1928	45.59
1928-1929	3.99	2.50	3.21	5.20	4.89	3.92	7.56	3.47	2.27	2.06	2.93	1.35	43.35	1929	43.95
1929-1930	3.09	3.06	4.15	2.86	2.88	3.23	2.03	2.74	3.05	3.33	3.00	1.35	34.77	1930	35.58
1930-1931	3.36	4.65	3.10	3.55	2.57	6.37	3.36	4.19	6.31	3.74	5.96	1.97	49.13	1931	44.43
1931-1932	2.22	1.03	3.16	6.16	2.38	6.16	1.97	2.57	2.75	2.57	6.44	11.75	49.16	1932	58.60
1932-1933	6.63	7.13	2.09	2.02	3.81	6.55	6.18	3.76	4.04	2.00	3.60	7.56	55.37	1933	48.13
1933-1934	3.41	1.48	3.72	3.87	4.53	4.03	5.24	3.98	4.79	2.20	3.89	7.37	48.51	1934	51.14
1934-1935	3.25	4.44	3.55	7.24	3.09	1.93	4.76	2.27	5.12	4.10	1.42	3.59	44.76	1935	41.30
1935-1936	1.04	5.86	0.88	8.81	4.16	9.31	3.80	1.98	2.98	2.63	3.28	7.72	52.45	1936	57.75
1936-1937	2.00	1.25	9.83	5.02	2.45	4.09	5.42	3.05	3.40	1.58	6.47	4.19	48.75	1937	50.58
1937-1938	3.92	8.10	2.89	5.29	2.91	2.70	2.60	4.17	8.62	11.49	3.10	6.76	62.55	1938	57.83
1938-1939	2.64	3.91	3.64	3.08	5.06	5.86	4.53	0.94	2.95	1.20	6.52	3.47	43.80	1939	44.17
1939-1940	5.76	1.40	3.40	2.82	5.97	4.04	6.00	5.76	2.45	4.41	2.01	2.63	46.65	1940	47.18
1940-1941	2.00	6.81	2.28	3.12	3.37	2.97	1.36	3.16	4.92	5.90	4.00	0.20	40.09	1941	37.88
1941-1942	1.75	3.35	3.78	4.95	3.30	8.35	0.89	2.80	3.88	5.38	4.32	1.94	44.69	1942	51.98
1942-1943	4.26	5.52	6.39	3.56	1.95	3.68	3.90	3.87	1.99	3.41	2.15	1.30	41.98	1943	36.84
1943-1944	6.38	3.43	1.22	1.79	2.50	5.05	4.11	1.35	3.75	1.74	2.01	11.03	44.36	1944	48.82
1944-1945	2.71	8.45	4.33	3.45	5.79	2.13	3.36	4.89	5.17	2.74	3.06	2.84	48.92	1945	52.25
1945-1946	2.21	9.03	7.58	3.82	3.81	1.42	2.37	4.92	3.31	2.49	11.48	3.69	56.13	1946	43.01
1946-1947	0.48	1.32	3.90	2.98	2.60	3.85	5.40	3.37	4.10	4.86	2.91	4.02	39.79	1947	47.68
1947-1948	3.26	6.42	3.91	7.14	2.57	4.26	3.97	9.36	4.20	3.73	3.14	1.59	53.55	1948	55.70
1948-1949	4.86	7.43	3.45	4.38	3.62	2.47	4.65	4.03	0.10	1.24	6.07	3.49	45.79	1949	38.58
1949-1950	2.27	3.47	2.79	3.68	4.62	3.99	3.68	3.51	2.93	1.62	5.04	2.03	39.63	1950	45.11
1950-1951	2.23	7.21	4.57	4.95	4.48	5.91	3.97	5.20	2.71	3.36	3.08	2.41	50.08	1951	55.38
1951-1952	4.14	9.64	5.53	4.88	4.81	4.13	4.41	3.97	3.16	1.20	7.33	2.21	55.41	———	———
37 Years Average	3.22	4.68	3.91	4.11	3.67	4.22	4.05	3.66	3.88	3.82	4.47	3.94	47.63*	Avg.	47.63†
37 Years Maximum	6.71	9.64	9.83	8.81	6.10	9.31	7.56	9.36	8.62	11.49	11.48	11.75	62.55	Max.	58.60
37 Years Minimum	0.21	0.48	0.88	1.79	1.82	1.42	0.89	0.94	0.10	1.20	1.33	0.20	34.77	Min.	35.58

(e Estimated; *Total of monthly averages; †36-year Average.

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	28.25
1916-1917	0.51	0.58	0.97	1.91	1.30	4.29	3.05	2.79	2.18	0.79	0.71	0.63	19.71	1917	22.41
1917-1918	1.79	1.59	1.38	1.83	4.04	3.17	3.40	2.24	1.24	0.47	0.82	1.81	23.78	1918	23.75
1918-1919	1.02	1.34	2.37	3.81	2.27	5.01	4.43	3.86	1.27	1.35	0.91	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	3.22	2.79	1.69	4.19	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	1.80	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	1.15	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	5.70	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	3.65	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	2.23	3.11	4.38	3.00	1.70	0.62	0.40	0.42	0.17	21.37	1926	21.03
1926-1927	0.76	2.15	2.09	3.34	2.64	3.05	1.71	2.03	1.44	0.32	1.59	0.64	21.76	1927	30.14
1927-1928	1.95	6.73	4.70	2.62	3.76	2.86	3.18	2.05	1.15	1.08	1.17	0.80	32.05	1928	23.03
1928-1929	1.21	1.16	1.99	4.02	3.65	5.56	6.09	3.56	0.48	0.06	0.07	—0.09	27.76	1929	25.18
1929-1930	0.07	0.53	1.18	1.96	2.38	2.74	1.84	0.88	0.42	0.09	0.04	—0.11	12.02	1930	11.82
1930-1931	0.12	0.63	0.83	1.56	2.11	5.95	3.21	3.10	2.97	0.69	0.85	0.10	22.12	1931	21.67
1931-1932	0.07	0.15	0.91	3.35	2.16	4.10	3.08	1.35	0.39	0.07	0.35	3.27	19.25	1932	30.15
1932-1933	3.48	6.29	2.26	2.24	2.70	6.28	6.88	1.93	1.57	0.17	0.25	1.52	35.57	1933	27.13
1933-1934	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	1934	28.94
1934-1935	1.33	1.91	3.21	4.78	2.83	4.22	4.05	1.71	1.78	0.62	—0.14	0.26	26.56	1935	21.82
1935-1936	—0.13	1.09	0.75	3.94	1.93	11.51	4.45	1.59	0.44	0.03	—0.02	0.82	26.40	1936	31.64
1936-1937	0.46	0.43	6.06	4.59	2.77	3.34	3.79	2.52	0.75	0.02	0.60	0.57	25.90	1937	27.16
1937-1938	0.79	4.17	3.25	4.15	2.99	2.99	2.29	1.84	2.85	6.93	1.32	1.66	35.23	1938	33.76
1938-1939	1.22	1.90	3.62	2.11	4.12	5.24	4.90	1.08	0.31	—0.24	0.22	0.09	24.57	1939	21.35
1939-1940	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	1940	23.98
1940-1941	—0.07	1.63	1.65	1.53	2.88	2.42	1.65	1.16	1.33	0.54	0.10	—0.41	14.41	1941	12.43
1941-1942	—0.15	0.52	0.86	1.87	2.54	7.14	1.75	1.06	0.59	0.86	0.26	—0.17	17.13	1942	22.77
1942-1943	0.45	1.86	4.56	2.45	3.46	4.40	2.68	3.01	0.36	0.02	—0.16	—0.22	22.87	1943	17.97
1943-1944	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	1944	18.61
1944-1945	0.50	3.16	3.55	2.91	2.58	5.61	2.15	3.10	1.26	0.15	—0.12	—0.15	24.70	1945	24.02
1945-1946	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	1946	21.08
1946-1947	0.49	0.30	1.19	2.16	1.52	4.01	3.31	2.86	1.09	0.53	0.12	0.31	17.89	1947	20.47
1947-1948	0.23	2.94	1.39	1.55	3.15	7.16	3.76	5.25	3.12	0.56	0.15	—0.21	29.05	1948	29.08
1948-1949	0.35	2.24	2.00	3.57	3.22	2.92	3.20	1.78	—0.02	—0.26	0.02	0.09	19.11	1949	16.40
1949-1950	0.05	0.57	1.26	2.03	2.42	4.16	3.01	2.20	1.00	—0.11	0.22	—0.02	16.79	1950	19.39
1950-1951	0.04	1.85	2.59	3.24	4.95	4.36	4.30	2.70	1.21	0.14	0.07	—0.07	25.38	1951	30.16
1951-1952	0.34	4.62	4.30	4.24	3.30	5.02	2.97	2.46	0.98	—0.35	0.53	—0.20	28.21		
37 Years Average	0.70	1.82	2.41	2.75	2.66	4.72	3.66	2.45	1.34	0.73	0.54	0.67	24.45*	Avg.	24.47†
37 Years Maximum	3.48	6.73	6.06	4.78	4.95	11.51	6.89	5.25	4.15	6.93	3.59	4.39	35.57	Max.	33.76
37 Years Minimum	—0.15	0.15	0.42	0.73	1.18	2.42	1.43	0.88	—0.02	—0.35	—0.31	—0.41	12.02	Min.	11.82

(e Estimated; *Total of monthly averages; †36-year Average.

TABLE 4

MONTHLY AND YEARLY PERCENT OF RAINFALL COLLECTED ON SCITUATE WATERSHED

	YEARS ENDED SEPTEMBER 30													Jan.-Dec.	
Year	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	62.9	162.2	128.9	76.4	59.9	37.1	82.0	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	52.3	11.6	23.7	48.1	1917	51.9
1917-1918	26.7	331.2	42.7	51.4	108.3	147.4	74.6	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	66.4	82.8	102.8	64.4	34.8	24.7	13.7	54.8	57.4	1919	57.9
1919-1920	63.3	44.6	105.0	39.3	27.7	195.9	81.2	94.4	52.3	31.1	20.5	11.2	64.3	1920	59.6
1920-1921	27.6	29.6	63.3	80.6	55.2	112.6	67.5	76.4	22.1	37.6	31.3	12.2	52.3	1921	51.2
1921-1922	19.0	20.6	105.5	59.2	67.4	75.2	198.0	67.0	37.7	41.9	39.5	82.0	56.8	1922	60.8
1922-1923	56.8	89.4	44.0	61.4	135.2	163.5	68.6	181.1	23.3	23.0	17.0	11.6	66.5	1923	61.5
1923-1924	22.4	35.4	89.6	100.7	64.4	122.5	93.1	92.3	70.5	11.6	9.6	12.9	57.6	1924	59.5
1924-1925	233.3	20.2	40.8	20.6	164.4	71.6	86.3	53.7	22.0	9.4	22.9	10.8	44.7	1925	42.8
1925-1926	14.1	30.6	62.7	68.4	51.0	117.4	122.0	74.9	35.6	10.5	10.6	9.0	49.1	1926	48.5
1926-1927	15.1	38.7	58.9	112.1	79.8	191.8	66.8	59.5	42.8	8.0	18.6	24.5	46.8	1927	57.5
1927-1928	37.2	73.0	83.5	96.3	87.0	105.9	58.6	141.4	29.4	21.3	21.3	16.7	57.2	1928	50.5
1928-1929	30.3	46.4	62.0	77.3	74.6	141.8	80.6	102.6	21.1	2.9	2.4	—6.7	64.0	1929	57.3
1929-1930	2.3	17.3	28.4	68.5	82.6	84.8	90.6	32.1	13.8	2.7	1.3	—8.1	34.6	1930	33.2
1930-1931	3.6	13.5	26.8	43.9	82.1	93.4	95.5	74.0	47.1	18.4	14.3	5.1	45.0	1931	48.8
1931-1932	3.2	14.6	28.8	54.4	90.8	66.6	156.3	52.5	14.2	2.7	5.4	27.8	39.2	1932	51.4
1932-1933	52.5	88.2	108.1	110.9	70.9	95.9	111.3	51.3	38.9	8.5	6.9	20.1	64.2	1933	56.4
1933-1934	27.9	55.4	48.9	97.7	26.0	136.0	116.0	72.4	30.7	3.6	3.6	19.0	53.8	1934	56.6
1934-1935	40.9	43.0	90.4	66.0	91.6	218.6	85.1	75.3	34.8	15.1	—9.8	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	78.4	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	48.6	99.4	68.5	81.4	89.4	108.2	114.9	10.5	—20.0	3.4	2.6	56.1	1939	48.3
1939-1940	10.9	96.4	45.3	72.0	25.3	120.3	114.8	55.0	67.3	19.0	—7.0	—1.5	52.1	1940	50.8
1940-1941	—3.5	23.9	72.4	49.0	87.4	81.5	121.3	36.7	27.0	9.2	2.5	—205.0	35.9	1941	32.8
1941-1942	—8.6	15.5	22.8	37.8	77.0	85.5	196.6	37.8	15.2	16.0	6.0	—8.8	38.3	1942	43.8
1942-1943	10.6	33.7	71.4	68.8	177.4	119.6	68.7	77.8	18.1	0.6	—7.4	—16.9	54.5	1943	48.8
1943-1944	9.4	27.7	34.4	40.8	49.2	64.2	85.9	80.0	11.5	—14.9	—15.4	15.7	30.1	1944	38.1
1944-1945	18.4	37.4	82.0	84.3	44.6	263.4	64.0	63.4	24.4	5.5	—3.9	—5.3	50.5	1945	46.0
1945-1946	2.7	20.8	60.6	102.9	78.2	260.6	60.3	50.8	49.8	0	20.5	15.2	45.7	1946	49.0
1946-1947	102.1	22.7	30.5	72.5	58.5	104.2	61.3	84.9	26.6	10.9	4.1	7.7	45.0	1947	42.9
1947-1948	7.0	45.8	35.5	21.7	122.6	168.1	94.7	56.1	74.3	15.0	4.8	—13.2	54.2	1948	52.2
1948-1949	7.2	30.1	58.0	81.5	89.0	118.2	68.8	44.2	—20.0	—21.0	0.3	2.6	41.7	1949	42.5
1949-1950	2.2	16.4	45.2	55.2	52.4	104.3	81.8	62.7	34.1	—6.8	4.4	—1.0	42.4	1950	43.0
1950-1951	1.8	25.6	56.7	65.4	110.5	73.8	108.3	51.9	44.6	4.2	2.3	—2.9	50.7	1951	54.5
1951-1952	8.2	47.9	77.8	86.9	68.6	121.5	67.3	61.7	31.0	—29.2	7.2	—9.0	50.9		
37 Years Average	21.7	38.9	61.6	66.9	72.5	111.8	90.4	66.9	34.5	19.1	12.1	17.0	51.3	Avg.	51.4†
37 Years Maximum	233.3	331.2	112.5	133.3	177.4	263.4	198.0	181.1	74.3	60.3	82.0	82.0	68.1	Max.	66.4
37 Years Minimum	—12.5	13.5	22.8	20.6	25.3	64.2	58.6	32.1	—20.0	—29.2	—15.4	—205.0	30.1	Min.	32.8

(e Estimated; †36-year Average.

TABLE 5

SCITUATE WATERSHED

(92.8 Square Miles)

STATISTICS OF STORAGE FOR YEAR ENDED SEPTEMBER 30, 1952

1951–1952	1 Regulating Reservoir		2 Westconnaug Reservoir		3 Barden Reservoir		4 Moswansicut Reservoir		5 Ponaganset Reservoir		Total 1–5		6 Scituate Reservoir		Total 1–6	
	Elev.	Avail. Storage M. G.	Elev.	Avail. Storage M. G.	Elev.	Avail. Storage M. G.	Elev.	Avail. Storage M. G.	Elev.	Avail. Storage M. G.	Avail. Storage M. G.	% of *Total Avail.	Elev.	Avail. Storage M. G.	Avail. Storage M. G.	% of †Total Avail.
Oct.	282.69	222	452.92	383	345.01	846	301.62	687	633.13	699	2,837	90.5	278.54	30,840	33,677	84.7
Nov.	283.05	246	452.96	385	345.28	867	301.75	700	633.38	718	2,916	93.0	276.71	29,010	31,926	80.3
Dec.	285.60	429	454.32	461	345.45	881	302.06	731	633.86	755	3,257	103.9	281.24	33,647	36,904	92.8
Jan.	285.56	434	454.54	474	345.61	894	302.09	734	634.30	789	3,325	106.1	283.40	35,958	39,283	98.8
Feb.	285.68	436	454.49	471	345.51	886	302.11	736	634.33	792	3,321	105.9	282.84	35,359	38,680	97.3
Mar.	285.55	425	454.25	458	345.33	871	302.01	726	633.70	743	3,223	102.8	281.44	33,861	37,084	93.3
Apr.	285.58	427	454.36	464	345.38	875	302.04	729	633.88	757	3,252	103.7	283.39	35,947	39,199	98.6
May	285.68	436	454.41	466	345.64	896	302.12	737	633.94	761	3,296	105.1	284.31	36,947	40,243	102.5
June	285.62	431	454.36	464	345.45	881	302.04	729	633.83	753	3,258	103.9	285.10	37,830	41,088	103.4
July	285.49	420	454.25	458	345.25	865	301.93	718	633.54	731	3,192	101.8	283.92	36,514	39,706	99.9
Aug.	283.85	300	453.55	418	344.92	839	301.68	693	633.09	696	2,946	94.0	281.34	33,754	36,700	92.3
Sept.	283.54	279	453.82	433	345.05	849	301.75	700	633.13	699	2,960	94.4	280.02	32,400	35,360	89.0
Max. For Year	November 3		December 22		November 3		November 17		January 26		January 26		May 24		May 24	
	285.78	444	454.66	481	346.04	928	302.18	744	634.41	798	3,366	107.4	285.15	37,885	41,124	103.5
Min. For Year	September 27		October 20		September 13		October 6		September 20		October 6		November 1		November 1	
	281.88	175	452.72	373	344.90	837	301.60	685	633.01	690	2,814	89.8	276.71	29,010	31,926	80.3

1.	Regulating	Reservoir—Spillway Elev.			285.50;	Total Storage	428	M.G.;	Dead Storage	7	M.G.;	Total Available Storage			421	M.G.
2.	Westconnaug	"	"	"	454.17;	" "	453	"	" "	0	"	"	"	"	453	"
3.	Barden	"	"	"	345.10;	" "	853	"	" "	0	"	"	"	"	853	"
4.	Moswansicut	"	"	"	301.90;	" "	1,781	"	" "	1,066	"	"	"	"	715	"
5.	Ponaganset	"	"	"	633.05;	" "	742	"	" "	49	"	"	"	"	693	"
	Total 1–5					Total Storage	4,257	M.G.;	Dead Storage	1,122	M.G.;	Total Available Storage			*3,135	M.G.
6.	Scituate	Reservoir—Spillway Elev.			284.01;	" "	37,011	"	" "	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 YEAR ENDED SEPTEMBER 30, 1952

1951–1952	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	Total		For Month	Avg. Per Day		1951–1952	37-Year Mean 1916-1952
Oct.	0	1,056.87	1,056.87	1,237.17	2,294.04	74.00	543.04	17.52	36.42
Nov.	0	1,312.79	1,312.79	1,165.14	2,477.93	82.60	7,455.93	248.53	97.84
Dec.	0	3,388.94	3,388.94	1,169.96	4,558.90	147.06	6,937.90	223.80	125.38
Jan.	0	6,259.07	6,259.07	1,180.38	7,439.45	239.98	6,836.45	220.53	143.07
Feb.	0	5,845.92	5,845.92	1,070.17	6,916.09	238.48	5,320.09	183.45	151.85
Mar.	0	4,867.92	4,867.92	1,116.87	5,984.79	193.06	8,099.79	261.28	245.55
Apr.	2.22†	2,638.98	2,641.20	1,098.22	3,739.42	124.65	4,783.42	159.45	196.76
May	230.62†	1,779.08	2,009.70	1,121.80	3,131.50	101.02	3,976.50	128.27	127.46
June	168.23†	1,494.67	1,662.90	1,297.45	2,960.35	98.68	1,578.35	52.61	72.04
July	0	743.01	743.01	1,701.36	2,444.37	78.85	—561.63	—18.12	37.98
Aug.	0	874.20	874.20	1,331.11	2,205.31	71.14	865.31	27.91	28.09
Sept.	0	875.84	875.84	1,299.37	2,175.21	72.50	—329.79	—10.99	36.02
For Yr.	401.07	31,137.29	31,538.36	14,789.00	46,327.36	126.58	45,505.36	124.33	107.96

†Flashboard leakage.

TABLE 7

SCITUATE WATERSHED — REFORESTATION

NUMBER AND KINDS OF TREES PLANTED IN VARIOUS YEARS

Planted During Calendar Year	Red Pine	White Pine	Douglas Fur	Austrian Pine	Scotch Pine	Jack Pine	White Spruce	Norway Spruce	Hemlock	Larch	Total Number Planted Yearly
1926	160,000	40,000	0	0	0	0	0	0	0	0	200,000
1927	60,000	150,000	0	0	0	0	0	0	0	0	210,000
1928	10,000	10,000	0	0	0	0	0	0	0	0	20,000
1929	10,000	75,000	0	0	0	0	0	0	0	0	85,000
1930	40,000	40,000	0	0	0	0	0	0	0	0	80,000
1931	40,000	50,000	0	0	0	0	9,000	0	0	0	99,000
1932	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
1934 & 1935	755,000	255,000	0	36,000	136,000	4,000	505,000	204,000	3,000	0	1,898,000
1936	453,700	111,000	0	14,400	0	0	20,000	15,000	26,000	0	640,100
1937	481,100	0	0	0	0	0	213,200	0	0	0	694,300
1938	229,000	21,693	0	0	0	0	0	0	0	0	250,693
1939	8,000	761,000	0	0	0	50,000	0	0	0	0	819,000
1940	267,387	618,828	0	45,916	0	67,750	0	0	0	0	999,881
1941	51,000	295,650	0	0	0	0	34,350	0	0	0	381,000
1942	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
1944	0	0	0	0	0	0	0	0	0	0	0
1945	0	0	0	0	0	0	0	0	0	0	0
1946	0	0	0	0	0	0	0	0	0	0	0
1947	0	0	0	0	0	0	0	0	0	0	0
1948	0	0	0	0	0	0	0	0	0	0	0
1949	0	0	0	0	0	0	0	0	0	0	0
1950	0	0	0	0	0	0	0	0	0	0	0
1951	0	1,500	12,000	0	0	0	0	0	0	0	13,500
1952	20,000	0	0	0	0	0	10,000	0	0	10,000	40,000
TOTALS	2,625,187	2,777,791	12,000	96,316	136,000	121,750	811,550	219,000	29,000	10,000	6,838,594

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

*1875 KVA 3 Phase, 60 Cycles, 2300 Volts, 80 Ft. Head Turbo-Generator.

TABLE 9

WATER PURIFICATION WORKS

OPERATING STATISTICS FOR YEAR ENDED SEPTEMBER 30, 1952

1951-1952	Influent Aerator — Hours Operated	Plant Influent Mil. Gals. Total	Plant Influent Mil. Gals. Avg. per Day	Water Filtered Mil. Gals. Total	Water Filtered Mil. Gals. Avg. per day	Wash Water Mil. Gals. Total	Wash Water Mil. Gals. Avg. per Day	Wash Water Mil. Gals. % of Water Filtered	Plant Effluent Mil. Gals. Total	Plant Effluent Mil. Gals. Avg. per Day	Plant Effluent Flow — Hours	Number of Filters In Operation Max.	Number of Filters In Operation Min.	Number of Filters In Operation Avg.	Avg. Rate of Filtration per Filter—M.G.D.
Oct.	744.0	1,237.17	39.91	1.151.4856	37.1447	6.536	0.211	0.6	1.144 9496	36.9338	744.0	13 5	4.0	8.1	4.56
Nov.	720.0	1,165.14	38.84	1,050.0064	35.0002	7.671	0.256	0.7	1,042.3354	34.7445	720.0	11.5	3.5	8.0	4.38
Dec.	744.0	1,169.96	37.74	1.051.8050	33.9292	9,020	0.291	0.8	1,042.7850	33.6382	744.0	11.0	4.0	7.7	4.41
Jan.	744.0	1,180.38	38.08	1.070.6161	34.5360	10.112	0.326	0.9	1,060.5041	34.2098	744.0	11.5	4.0	7.8	4.44
Feb.	696.0	1,070.17	36.90	1.013.5840	34.9512	9.962	0.343	1.0	1,003.6220	34.6076	696.0	13.0	5.0	7.9	4.41
Mar.	744.0	1,116.87	36.03	1,060.9429	34.2240	7.985	0.257	0.7	1,052.9579	33.9664	744.0	12.0	4.5	7.9	4.31
Apr.	719.0	1,098.22	36.61	1.027.0726	34.2357	7.445	0.248	0.7	1,019.6276	33.9876	719.0	12.0	5.0	8.1	4.22
May	744.0	1,121.80	36.19	1.072.6291	34.6009	9.383	0.303	0.9	1,063.2461	34.2983	744.0	12.0	4.5	8.0	4.30
June	720.0	1,297.45	43.25	1,247.8104	41.5937	10.109	0.337	0.8	1,237.7014	41.2567	720.0	14.0	3.0	8.9	4.65
July	744.0	1,701.36	54.88	1,708.7302	55.1203	10.354	0.334	0.6	1,698.3762	54.7863	744.0	14.0	4.0	10.6	5.20
Aug.	744.0	1,331.11	42.94	1,266.9172	40.8683	6.704	0.216	0.5	1,260.2132	40.6520	744.0	14.0	3.5	8.1	5.02
Sept.	721.0	1,299.37	43.31	1,208.6370	40.2879	6.167	0.205	0.5	1,202.4700	40.0823	721.0	14.0	4.5	8.9	4.52
Totals	8,784.0	14,789.00	.....	13,930.2365	.....	101.448	.....	.....	13,828.7885	.....	8,784.0	.....	.....	.....	.....
Average	732.0	.....	40.41	.....	38.0607	.....	0.277	0.7	.....	37.7836	732.0	.....	.....	8.3	4.56

Raw water treated with Ferri-Floc before Influent Aeration.
Quick lime added to Ferri-Floc treated water in conduit opposite Fluoridation Room.
Chlorine added to water after filtration.
Sodium Silicofluoride added to water after filtration; from September 2 to September 30.
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, 1952

1951–1952	Number of Filters Washed			Ferri-Floc Used			Quicklime Used			Chlorine Used			Fuel Oil Used for Heating—Gals.	
	Total	Avg. per Day	Av. Filter Run Hours	Lbs.	Avg. per Day	Gr. per Gal.	Lbs.	Avg. per Day	Gr. Per Gal.	Lbs.	Avg. Per Day	Parts per Mil.	No. 2	No. 6
Oct.	52	1.7	131.28	107,458	3,466	0.61	107,583	3,470	0.61	2,921.5	94.2	0.31	352	1,475
Nov. ...	63	2.1	91.39	100,671	3,356	0.60	89,575	2,986	0.54	2,674.5	89.1	0.31	121	8,096
Dec.	75	2.4	76.78	95,896	3,093	0.57	90,842	2,930	0.54	2,688.0	86.7	0.31	39	10,816
Jan.	94	3.0	62.41	109,656	3,537	0.65	101,791	3,283	0.60	2,638.0	85.1	0.30	28	12,081
Feb.	93	3.2	60.43	108,751	3,750	0.71	98,547	3,398	0.64	2,538.0	87.5	0.30	0	11,113
Mar. ...	76	2.4	78.94	123,922	3,997	0.78	105,190	3,393	0.66	2,631.5	84.9	0.30	80	10,153
Apr.	73	2.4	96.43	121,885	4,063	0.78	101,901	3,397	0.65	2,583.0	86.1	0.30	289	4,223
May	86	2.8	74.79	123,977	3,999	0.77	117,769	3,799	0.73	2,646.5	85.4	0.30	415	350
June	84	2.8	73.41	144,369	4,812	0.78	133,791	4,460	0.72	3,091.0	103.0	0.30	566	0
July	82	2.6	98.11	165,980	5,354	0.68	174,065	5,615	0.72	4,073.5	131.4	0.29	590	0
Aug.	51	1.6	113.48	125,327	4,043	0.66	129,324	4,172	0.68	3,229.5	104.2	0.31	685	0
Sept. ...	47	1.6	146.97	103,026	3,434	0.55	126,063	4,202	0.68	3,122.5	104.1	0.31	764	0
Totals ...	876	.....	.....	1,430,918	.....	.....	1,376,441	.....	.....	34,837.5	.....	.....	3,929	58,307
Average .	.....	2.4	86.72	.....	3,910	0.68	.....	3,761	0.65	.....	95.2	0.30	327	4,859

Total filter hours for year, 73,367.22; average per day, 200.46.
Average quantity of water filtered per filter per run, 16.48 m. g.

TABLE 10

WATER PURIFICATION WORKS

CHEMICALS USED DURING THE FISCAL YEAR ENDED

SEPTEMBER 30, 1952

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.	1,430,918	3,910	14,789,000,000	$31,519.77	96.75	$2.13
Quicklime.	1,376,441	3,761	14,789,000,000	12,137.12	93.07	0.82
Chlorine.	34,837.5	95.2	13,828,788,500	3,048.28	2.52	0.22
Totals.	2,842,196.5	.....	.....	$46,705.17	.....	$3.17

*15,159 pounds of Sodium Silicofluoride used Sept. 2, 1951 to Sept. 30, 1951.

Price of Ferri-Floc—From Oct. 1, 1951 to May 21, 1952—$44.22 per ton; from May 22 to June 16, 1952—$45.17 per ton; from June 17, to Sept. 30, 1952—$45.63.

Price of Quicklime—From Oct. 1 to Oct. 4, 1951—$17.55 per ton; from Oct. 5, 1951 to March 30, 1952—$17.46 per ton; from March 31 to July 27, 1952—$18.14 per ton; from July 28 to Sept. 14, 1952—$18.33 per ton; from Sept. 15 to Sept. 30, 1952—$18.04 per ton.

Price of Chlorine—From Oct. 1, 1951 to Sept. 30, 1952—$0.0875 per pound.

Price of Sodium Silicofluoride—$0.0728 per pound.

TABLE 11

WATER PURIFICATION WORKS

*CHEMICAL AND PHYSICAL CHARACTERISTICS OF WATER IN PROCESS OF FILTRATION

YEAR ENDED SEPTEMBER 30, 1952

Monthly Averages	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
Alkalinity													
Raw	4.8	4.7	4.6	4.6	4.8	4.9	4.5	4.8	4.9	5.3	5.5	5.2	4.9
Effluent	15.1	13.4	13.3	13.5	14.4	14.5	14.5	14.5	15.0	16.2	16.9	17.6	14.9
Tap	15.1	13.5	13.1	13.4	13.9	14.1	14.4	14.7	14.7	15.5	16.8	16.0	14.6
Hardness													
Raw	11	11	10	11	11	10	10	9	10	10	9	10	10
Effluent	26	24	24	25	26	26	26	26	27	27	27	27	26
Tap	26	24	25	24	26	26	26	26	28	27	27	28	26
Hydrogen Ion Concentration													
Raw	6.1	6.7	6.4	6.3	6.3	6.2	6.4	6.3	6.1	6.0	5.9	5.9	6.2
Aerated Influent	4.2	4.4	4.1	4.1	4.2	4.1	4.1	4.1	3.9	4.0	4.1	4.2	4.1
Treated	9.6	9.5	9.5	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.7	9.7	9.6
Settled	9.5	9.4	9.4	9.4	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.6	9.5
Filtered	9.4	9.4	9.4	9.4	9.5	9.5	9.4	9.4	9.5	9.5	9.5	9.5	9.4
Effluent	9.4	9.4	9.4	9.4	9.5	9.5	9.4	9.4	9.5	9.5	9.5	9.5	9.4
Tap	9.4	9.3	9.3	9.3	9.4	9.4	9.4	9.4	9.4	9.4	9.5	9.4	9.4
Free CO_2													
Raw	5.7	2.1	2.1	1.7	1.7	2.1	1.8	1.8	2.8	4.3	5.9	5.2	3.3
Aerated Influent	6.5	6.5	6.3	5.9	6.2	7.8	7.1	7.5	7.5	7.3	7.1	6.1	6.8
Phenolphthalein Alkalinity													
Treated	9.5	8.5	8.2	9.4	9.3	9.2	9.3	8.5	9.7	9.6	10.6	11.3	9.4
Settled	8.5	7.4	7.3	7.6	8.2	8.0	7.7	7.7	8.2	8.5	9.2	9.9	8.2
Filtered	8.1	7.1	7.1	7.5	8.0	7.8	7.5	7.4	7.9	8.3	8.8	9.5	7.9
Effluent	8.0	7.1	7.2	7.5	8.0	7.8	7.6	7.4	8.1	8.3	8.8	9.6	7.9
Tap	7.8	7.0	6.8	7.0	7.2	7.3	7.2	7.1	7.6	7.9	8.5	7.8	7.4
Color													
Raw	17	13	13	16	17	17	16	15	13	13	14	18	15
Effluent	5	5	5	6	8	8	7	8	6	6	7	7	6
Tap	5	5	5	6	8	8	7	8	6	6	7	7	6
Turbidity													
Raw	0.2	0.0	0.0	0.0	0.1	0.0	0.2	0.2	0.3	0.2	0.1	0.2	0.1
Settled	0.0	0.0	0.0	0.1	0.2	0.0	0.2	0.2	0.2	0.1	0.0	0.1	0.1
Effluent	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Iron													
Raw	.14	.07	.06	.05	.05	.04	.04	.02	.03	.06	.15	.31	.08
Settled	.12	.25	.39	.54	.66	.58	.37	.32	.27	.32	.30	.23	.36
Effluent	.01	.01	.01	.01	.03	.02	.01	.00	.00	.00	.00	.00	.01
Tap	.01	.01	.01	.01	.03	.03	02	.01	.02	.01	.01	.01	.01
Manganese													
Raw	.20	.05	.02	.01	.02	.02	.01	.01	.01	.03	.10	.17	.05
Settled	.03	.01	.01	.01	.01	.01	.00	.00	.00	.00	01	.03	.01
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
Temperature (°F.)													
Air (av. of daily max.)	61	49	41	42	38	42	57	76	76	84	77	72	59
Air (av. of daily min.)	43	30	23	22	20	28	39	56	56	63	61	51	41
Raw water	58	52	40	35	34	35	43	58	58	57	59	58	49
Water on filters	59	52	40	35	35	35	46	62	62	63	62	61	51
Tap	59	55	47	38	38	38	46	62	62	65	71	66	54

*Parts per million, except pH and Temperature.

TABLE 12

WATER PURIFICATION WORKS

*CHEMICAL AND PHYSICAL CHARACTERISTICS OF WATER IN VARIOUS BROOKS AND RESERVOIRS ON SCITUATE WATERSHED

YEAR ENDED SEPTEMBER 30, 1952

Monthly Analyses	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
Color													
Coventry Brook	25	54	19	22	27	21	70	70	30	13	13	16	32
Wilbur Brook	90	56	42	35	26	37	70	70	110	**	90	170	72
Westconnaug Res.....	18	22	32	21	22	23	28	35	29	18	28	25	25
Barden Reservoir ...	27	38	28	22	17	23	28	32	31	18	25	25	26
Cork Brook	18	26	13	17	11	17	60	18	16	9	8	**	19
Rush Brook	43	28	23	23	16	24	55	32	27	14	12	16	26
Huntinghouse Brook	17	25	25	20	12	19	65	25	19	23	23	15	24
Harrisdale Brook ...	17	29	23	20	13	18	28	25	21	20	23	16	21
Blanchard Brook ...	360	170	86	56	56	74	120	180	440	**	200	**	174
Moswansicut Pond .	15	14	15	23	14	18	27	23	25	23	24	16	20
Regulating Reservoir	38	25	21	24	17	23	30	38	22	17	15	20	24
Quonapaug Brook ..	190	94	70	66	42	66	180	140	140	**	150	120	114
Hemlock Brook	27	42	32	23	21	23	21	35	33	23	27	28	28
Betty Pond Stream.	50	22	21	12	9	12	20	15	17	25	22	35	22
Spruce Brook	42	56	40	35	22	29	90	60	50	56	29	28	45
Turbidity													
Coventry Brook	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.5	0.2	0.2	0.2	0.1
Wilbur Brook	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.5	**	0.0	0.0	0.1
Westconnaug Res.....	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.4	0.2	0.1	0.0	0.1
Barden Reservoir ...	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.5	0.0	0.2	0.0	0.1
Cork Brook	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.2	0.2	0.0	0.0	**	0.1
Rush Brook	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.2	0.2	0.0	0.0	0.1
Huntinghouse Brook	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.3	0.1	0.1	0.0	0.1
Harrisdale Brook ...	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.4	0.1	0.0	0.0	0.1
Blanchard Brook ...	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	**	0.0	**	0.0
Moswansicut Pond .	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.1	0.1	0.0	0.0	0.0
Regulating Reservoir	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.7	0.5	0.0	0.2	0.0	0.2
Quonapaug Brook ..	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	**	0.0	0.1	0.0
Hemlock Brook	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.1	0.0	0.0	0.0
Betty Pond Stream.	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.1	0.0	0.1	0.0	0.1
Spruce Brook	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.1	0.1	0.0	0.0	0.0
Iron													
Coventry Brook	0.02	0.04	0.08	0.08	0.03	0.01	0.02	0 21	0.16	0.03	0.01	0.03	0.06
Wilbur Brook	.18	.10	.02	.02	.01	.02	.00	.25	.28	**	.33	.35	.14
Westconnaug Res.....	.08	.12	.02	.02	.01	.03	.00	08	.15	.40	.33	.35	.13
Barden Reservoir ..	.14	.16	.01	.01	01	.03	.01	.09	.12	.09	.26	.30	.10
Cork Brook	.01	.03	.00	.01	.01	.01	.01	.00	.00	.15	.01	**	.02
Rush Brook	.03	.10	.01	.02	.02	.01	.01	.01	.04	.35	.03	.30	.08
Huntinghouse Brook	.10	.03	.02	.02	.05	.03	.01	.02	.06	.40	.34	.09	.10
Harrisdale Brook ...	.08	.10	.01	.01	.03	.02	.02	.03	.02	.50	.34	.10	.10
Blanchard Brook ...	.32	.30	.06	.08	.02	.08	.07	.30	1.15	**	.95	**	.33
Moswansicut Pond ..	.04	06	.00	.01	.02	.02	.08	.03	.27	.60	.34	.09	.13
Regulating Reservoir	.03	.10	.01	.01	.01	.01	.18	.13	.01	.23	.04	.32	.09
Quonapaug Brook ..	.21	.18	.04	.03	.01	.03	.10	.28	.39	**	.42	.52	.20
Hemlock Brook	.16	.18	.01	.02	.00	.02	.02	.11	.01	.10	.32	.32	.10
Betty Pond Stream..	.04	.08	.01	.01	.00	.01	.01	.00	.00	2.40	.06	.03	.22
Spruce Brook	.03	.10	.01	.01	.00	.01	.08	.03	.10	1.00	.07	.05	.12
Manganese													
Coventry Brook	0.04	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00
Wilbur Brook	.02	.00	.01	.01	.00	.01	.02	.00	.01	**	.00	.00	.01
Westconnaug Res.....	.00	.00	.02	.02	.00	.02	.01	.01	.02	.00	.00	.00	.01
Barden Reservoir ..	.01	.00	.00	.02	.00	.02	.01	.00	.02	.00	.00	.00	.01
Cork Brook	.03	.00	.00	.00	.00	.01	.03	.00	.01	.00	.00	**	.01
Rush Brook	.00	.00	.00	.01	.01	.01	.04	.00	.02	.00	.00	.00	.01
Huntinghouse Brook	.04	.00	.01	.00	.00	.01	.01	.00	.01	.00	.00	.00	.01
Harrisdale Brook ...	.00	.00	.01	.01	.00	.01	.01	.01	.02	.00	.00	.00	.00
Blanchard Brook ...	.06	.02	.02	.01	.01	.02	.01	.01	.01	**	.01	**	.02
Moswansicut Pond ..	.04	.00	.00	.01	.01	.01	.01	.00	.01	.00	.00	.00	.01
Regulating Reservoir	.02	.00	.00	.02	.00	02	.04	.01	.02	.00	.00	.00	.01
Quonapaug Brook ..	.03	00	.00	.01	.00	.01	.00	.00	.01	**	.01	.01	.01
Hemlock Brook	.00	.00	.00	.02	.00	.01	.00	.01	.02*	.00	.01	.00	.00
Betty Pond Stream..	.03	.00	00	.01	.01	01	.00	.00	.01	.04	.00	.00	.01
Spruce Brook	.02	.00	.01	.01	.01	01	.00	.01	.01	.00	.00	.00	.01

*Parts per million.
**No Sample Obtained—Brook Dry.

Table 12 (Continued)

WATER PURIFICATION WORKS

*CHEMICAL AND PHYSICAL CHARACTERISTICS OF WATER IN VARIOUS BROOKS AND RESERVOIRS ON SCITUATE WATERSHED

YEAR ENDED SEPTEMBER 30, 1952

Monthly Analyses	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
Hydrogen Ion Concentration													
Coventry Brook	6.2	6.0	6.1	6.0	5.8	6.1	6.1	6.0	6.2	6.3	6.4	6.3	6.1
Wilbur Brook	6.1	6.0	6.0	6.0	5.9	5.9	6.1	6.0	6.0	**	6.1	5.9	6.0
Westconnaug Res.	6.6	6.4	6.1	6.0	6.0	6.0	6.7	6.1	6.1	6.2	6.6	6.5	6.3
Barden Reservoir	6.6	6.2	6.1	6.0	6.0	6.0	6.7	6.1	6.1	6.2	6.7	6.5	6.3
Cork Brook	6.7	6.3	6.1	6.0	6.2	6.1	6.6	6.1	6.3	6.2	6.7	**	6.3
Rush Brook	6.2	6.2	6.1	6.0	6.0	6.0	6.5	6.1	6.4	6.2	6.1	6.2	6.2
Huntinghouse Brook	6.6	6.2	6.1	6.1	6.2	6.1	6.6	6.3	6.4	6.5	6.7	6.7	6.4
Harrisdale Brook	6.7	6.3	6.1	6.1	6.2	6.1	6.5	6.3	6.4	6.5	6.8	6.9	6.4
Blanchard Brook	5.6	5.7	6.1	5.7	5.4	5.7	6.0	5.9	5.6	**	5.5	**	5.7
Moswansicut Pond	6.3	6.6	6.5	6.3	6.2	6.1	6.5	6.3	6.4	6.5	6.9	6.7	6.4
Regulating Reservoir	6.2	6.3	6.1	6.0	6.0	6.0	6.3	6.0	6.5	6.3	6.3	6.1	6.2
Quonapaug Brook	5.7	5.7	5.8	5.7	5.6	5.9	6.0	5.9	6.0	**	5.9	6.0	5.8
Hemlock Brook	6.6	6.1	6.0	6.0	6.0	5.9	6.7	6.1	6.1	6.2	6.8	6.5	6.2
Betty Pond Stream	6.0	6.2	5.8	5.7	5.8	6.0	6.7	5.9	5.9	5.9	5.9	5.8	6.0
Spruce Brook	6.2	5.9	6.0	5.9	5.9	5.9	6.1	6.1	6.1	6.1	6.5	6.3	6.1
Free CO_2													
Coventry Brook	3.0	5.0	4.0	4.5	6.0	3.0	6.5	7.0	3.0	2.5	2.0	3.3	4.2
Wilbur Brook	4.0	6.0	5.0	5.5	6.5	4.5	6.0	7.0	6.0	**	6.0	6.0	5.7
Westconnaug Res.	2.0	5.0	4.0	2.0	3.0	3.5	2.0	2.5	2.5	1.5	1.0	2.0	2.6
Barden Reservoir	1.0	6.5	4.5	2.0	3.0	3.0	1.5	3.0	2.5	1.5	1.0	2.0	2.6
Cork Brook	1.0	6.0	3.0	2.0	2.0	3.0	2.5	2.5	1.5	2.0	1.0	**	2.4
Rush Brook	8.5	6.0	3.0	2.5	5.0	2.5	2.5	4.0	2.0	4.0	3.5	5.5	4.1
Huntinghouse Brook	1.0	5.5	4.5	3.0	3.5	3.0	2.5	3.0	2.5	2.5	1.0	2.0	2.8
Harrisdale Brook	0.5	6.0	3.0	3.0	3.5	3.5	2.5	3.0	2.5	2.5	1.0	2.0	2.7
Blanchard Brook	10.0	8.0	6.0	7.5	15.5	6.5	6.5	9.0	13.5	**	8.0	**	9.0
Moswansicut Pond	3.0	5.0	3.0	1.0	3.5	3.0	2.0	3.0	2.5	2.5	1.0	2.0	2.6
Regulating Reservoir	8.5	5.0	3.5	3.0	6.0	2.5	3.0	3.5	2.0	3.5	3.5	6.0	4.2
Quonapaug Brook	10.5	6.5	5.0	7.0	12.0	7.0	7.0	7.5	8.0	**	8.0	9.0	7.9
Hemlock Brook	1.0	7.0	4.5	3.0	2.5	3.0	2.0	3.0	3.0	2.5	1.0	1.5	2.8
Betty Pond Stream	9.5	7.5	5.5	6.5	9.0	3.0	2.0	8.0	6.0	9.0	4.5	7.0	6.4
Spruce Brook	2.5	7.5	4.0	4.0	3.5	3.0	4.5	3.0	3.0	4.5	2.0	3.0	3.7
Alkalinity													
Coventry Brook	6.5	3.5	4.0	4.5	5.0	5.5	6.5	6.5	5.5	7.0	7.5	7.5	5.8
Wilbur Brook	6.5	4.5	4.0	3.5	4.5	4.5	6.5	6.0	8.5	**	7.0	7.5	5.7
Westconnaug Res.	7.5	5.5	4.0	4.0	5.0	4.5	4.0	5.0	5.0	5.5	7.0	5.5	5.2
Barden Reservoir	5.5	4.5	3.5	3.5	5.0	4.5	4.0	5.0	5.0	6.5	5.5	5.0	4.8
Cork Brook	7.0	4.5	4.0	4.0	4.5	5.5	5.0	5.5	4.5	5.5	5.5	**	5.0
Rush Brook	8.0	4.5	4.5	4.0	7.0	5.0	5.5	7.5	8.5	11.0	11.5	11.0	7.3
Huntinghouse Brook	11.5	5.0	4.5	5.5	8.0	7.0	5.5	9.0	10.0	12.0	11.0	12.0	8.4
Harrisdale Brook	12.5	6.5	5.5	5.5	7.5	6.0	8.0	8.0	10.5	12.0	11.0	12.0	8.7
Blanchard Brook	3.0	2.0	7.0	2.0	4.0	4.5	3.0	4.5	6.5	**	5.5	**	4.2
Moswansicut Pond	9.5	6.5	6.5	4.5	8.0	7.0	8.5	8.5	10.5	12.0	11.0	11.5	8.7
Regulating Reservoir	7.0	4.5	3.5	4.0	7.0	5.0	5.0	8.5	9.0	10.5	11.5	11.0	7.2
Quonapaug Brook	6.5	4.5	4.0	3.5	4.5	6.5	7.0	6.5	9.5	**	8.0	17.5	7.1
Hemlock Brook	6.0	3.5	3.5	3.5	4.5	5.0	4.5	5.0	4.5	6.0	6.0	5.5	4.8
Betty Pond Stream	6.5	5.0	4.5	2.5	5.5	4.5	5.0	5.5	5.5	6.0	5.5	4.5	5.0
Spruce Brook	5.5	3.5	3.5	4.0	4.5	4.5	4.5	5.0	4.0	8.5	7.5	8.0	5.2

*Parts per million, except pH.
**No Sample Obtained—Brook Dry.

TABLE 13

WATER PURIFICATION WORKS

CHEMICAL AND PHYSICAL CHARACTERISTICS OF WATER IN VARIOUS PARTS OF THE DISTRIBUTION SYSTEM

YEAR ENDED SEPTEMBER 30, 1952

Monthly Averages	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
Hydrogen Ion Concentration													
Neutaconkanut Reservoir..	9.3	9.3	9.3	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4
Wayland Ave., Cranston...	9.3	9.3	9.3	9.3	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4
Westminster St., Olneyville	9.3	9.3	9.3	9.3	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4
Budlong Road, Cranston...	9.3	9.3	9.3	9.3	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4
Reservoir Ave., Cranston..	9.4	9.3	9.3	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.3	9.4
Post Road, Warwick.....	9.5	9.5	9.4	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5
Biltmore Hotel	9.3	9.3	9.2	9.3	9.4	9.4	9.4	9.4	9.4	9.5	9.5	9.4	9.4
Crown Hotel	9.4	9.3	9.3	9.3	9.4	9.4	9.4	9.4	9.4	9.4	9.5	9.4	9.4
Sewer Maintenance Bldg...	9.3	9.3	9.2	9.3	9.4	9.4	9.4	9.4	9.4	9.5	9.5	9.4	9.4
Longview Reservoir	9.3	9.3	9.2	9.3	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.3
Phenolphthalein Alkalinity													
Neutaconkanut Reservoir..	7.9	7.2	6.9	7.1	6.9	7.6	7.3	7.2	7.3	7.7	8.4	7.8	7.4
Wayland Ave., Cranston...	7.9	7.0	6.7	7.2	7.0	7.5	7.2	7.2	7.5	7.7	8.3	7.8	7.4
Westminster St., Olneyville	8.0	7.0	6.7	7.1	7.0	7.5	7.3	7.1	7.6	7.8	8.3	7.8	7.4
Budlong Road, Cranston...	7.9	7.0	6.7	7.1	7.0	7.5	7.3	7.1	7.6	7.7	8.4	7.8	7.4
Reservoir Ave., Cranston..	7.9	6.9	6.8	7.1	7.0	7.4	7.3	7.2	7.7	7.7	8.4	7.9	7.4
Post Road, Warwick.....	9.9	8.6	8.1	8.4	7.8	8.3	8.6	8.8	9.1	8.7	10.3	10.5	8.9
Biltmore Hotel	7.8	7.0	6.7	7.1	7.0	7.5	7.3	7.2	7.6	7.8	8.4	7.9	7.4
Crown Hotel	7.9	7.0	6.8	7.2	7.0	7.5	7.3	7.2	7.6	7.8	8.3	7.9	7.4
Sewer Maintenance Bldg...	7.8	7.0	6.6	7.1	7.0	7.5	7.3	7.1	7.5	7.8	8.3	7.9	7.4
Longview Reservoir	7.8	6.9	6.6	7.1	6.9	7.5	7.3	7.2	7.5	7.8	8.4	7.9	7.4
Methyl Orange Alkalinity													
Neutaconkanut Reservoir..	15.1	13.9	13.3	13.5	13.8	14.4	14.1	14.8	14.5	15.5	16.9	15.9	14.6
Wayland Ave., Cranston...	15.1	13.6	13.1	13.6	14.1	14.4	14.5	14.7	14.9	15.6	17.0	16.0	14.7
Westminster St., Olneyville	15.2	13.6	13.2	13.7	14.2	14.5	14.6	14.8	14.9	15.6	16.8	16.1	14.8
Budlong Road, Cranston...	15.1	13.6	13.1	13.6	14.2	14.4	14.6	14.7	14.9	15.6	16.9	16.0	14.7
Reservoir Ave., Cranston..	15.2	13.5	13.4	13.6	14.2	14.4	14.5	14.8	15.0	15.6	16.4	16.1	14.7
Post Road, Warwick.....	17.9	15.7	14.7	14.9	15.3	15.4	16.2	16.7	16.3	16.4	19.3	19.3	16.5
Biltmore Hotel	15.0	13.5	13.1	13.6	14.0	14.4	14.4	14.6	14.8	15.6	16.9	16.0	14.6
Crown Hotel	15.2	13.7	13.4	13.6	14.2	14.4	14.6	14.8	15.1	15.8	16.4	16.2	14.8
Sewer Maintenance Bldg...	15.2	13.5	13.2	13.5	13.8	14.4	14.4	14.7	14.8	15.7	17.0	16.1	14.7
Longview Reservoir	15.2	13.6	13.1	13.5	13.8	14.4	14.5	14.8	14.9	15.8	16.8	16.2	14.7
Color													
Neutaconkanut Reservoir..	5	5	5	6	7	8	7	8	6	6	7	7	6
Wayland Ave., Cranston...	5	5	5	6	8	8	7	9	6	6	7	7	6
Westminster St., Olneyville	5	5	5	6	8	8	8	9	6	6	7	7	7
Budlong Road, Cranston...	5	5	5	6	8	9	8	9	6	6	7	7	7
Reservoir Ave., Cranston..	5	5	5	6	8	8	8	9	7	6	7	7	7
Post Road, Warwick.....	5	5	5	6	7	7	7	8	6	6	7	7	6
Biltmore Hotel	5	5	5	6	8	8	7	8	6	6	7	7	6
Crown Hotel	5	5	6	7	8	9	8	9	7	6	7	7	7
Sewer Maintenance Bldg...	5	5	5	6	9	8	7	8	6	6	7	7	6
Longview Reservoir	5	5	5	6	9	8	7	8	6	6	7	7	6
Iron													
Neutaconkanut Reservoir..	0.02	0.02	0.01	0.01	0.03	0.03	0.01	0.00	0.01	0.00	0.00	0.02	0.01
Wayland Ave., Cranston...	.02	.03	.03	.04	.06	.04	.05	.03	.03	.01	.02	.03	.03
Westminster St., Olneyville	.02	.03	.03	.04	.06	.05	.06	.02	.02	.02	.02	.04	.03
Budlong Road, Cranston...	.03	.03	.03	.04	.06	06	.06	.04	.03	.03	.02	.04	.04
Reservoir Ave., Cranston..	.04	.03	.04	.03	.07	.06	.06	.05	.04	.03	.03	.04	.04
Post Road, Warwick.....	.02	.03	.02	.03	.04	.04	.04	.01	.01	.01	.01	.01	.02
Biltmore Hotel	.02	.03	.03	.04	.06	.05	.03	.01	.02	.02	.01	.02	.03
Crown Hotel	.05	.05	.04	.05	.07	.03	.07	.04	.03	.02	.03	.05	.04
Sewer Maintenance Bldg...	.04	.04	.04	04	.07	.07	.03	.01	.01	.01	.02	.02	.03
Longview Reservoir	.05	.05	.03	.04	.07	.06	.04	.01	.02	.02	.02	.02	.03

TABLE 13 (Continued)

WATER PURIFICATION WORKS

CHEMICAL AND PHYSICAL CHARACTERISTICS OF WATER IN VARIOUS PARTS OF THE DISTRIBUTION SYSTEM

YEAR ENDED SEPTEMBER 30, 1952

Monthly Averages	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept	Avg. for Year
Chlorides													
Neutaconkanut Reservoir..	4.0	4.0	3.9	3.9	3.6	3.5	3.6	3.3	3.4	3.6	3.3	3.5	3.6
Wayland Ave., Cranston...	4.0	4.0	3.9	4.0	3.6	3.5	3.6	3.4	3.4	3.6	3.4	3.5	3.6
Westminster St., Olneyville	3.9	4.0	3.8	3.8	3.6	3.5	3.6	3.3	3.4	3.6	3.5	3.5	3.6
Budlong Road, Cranston...	4.0	4.0	3.9	3.8	3.5	3.5	3.6	3.3	3.4	3.5	3.3	3.4	3.6
Reservoir Ave., Cranston..	4.0	4.0	3.9	3.8	3.5	3.5	3.5	3.3	3.4	3.5	3.4	3.4	3.6
Post Road, Warwick.....	4.0	4.0	3.8	3.8	3.6	3.5	3.5	3.2	3.4	3.5	3.4	3.4	3.6
Biltmore Hotel	4.0	4.0	3.9	3.8	3.6	3.5	3.6	3.4	3.4	3.5	3.3	3.4	3.6
Crown Hotel	4.0	4.0	3.8	4.0	3.6	3.5	3.6	3.3	3.4	3.5	3.4	3.4	3.6
Sewer Maintenance Bldg...	4.0	4.0	3.8	3.8	3.6	3.5	3.5	3.4	3.4	3.5	3.4	3.5	3.6
Longview Reservoir	4.0	4.0	3.9	3.9	3.5	3.5	3.5	3.3	3.4	3.5	3.4	3.5	3.6
Nitrites													
Neutaconkanut Reservoir..	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.000
Wayland Ave., Cranston...	.001	.000	.000	.000	.001	.001	.001	.001	.001	.001	.001	.001	.001
Westminster St., Olneyville	.001	.000	.000	.000	.001	.001	.000	.001	.001	.001	.001	.001	.001
Budlong Road, Cranston...	.001	.000	.000	.000	.001	.001	.000	.001	.001	.001	.001	.001	.001
Reservoir Ave., Cranston..	.001	.000	.000	.000	.001	.001	.001	.001	.001	.001	.001	.001	.001
Post Road, Warwick.....	.001	.000	.000	.000	.000	.000	.000	.001	.001	.001	.001	.002	.000
Biltmore Hotel	.001	.001	.000	.000	.000	.000	.000	.001	.001	.001	.002	.002	.001
Crown Hotel	.001	.000	.000	.000	.001	.001	.001	.001	.000	.001	.001	.001	.001
Sewer Maintenance Bldg...	.001	.000	.000	.000	.000	.000	.000	.001	.000	.001	.001	.001	.000
Longview Reservoir	.002	.000	.000	.000	.000	.000	.000	.001	.001	.001	.001	.001	.000
Taste													
Neutaconkanut Reservoir.	0	0	0	0	0	0	0	0	0	0	0	0	0
Wayland 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
Post Road, Warwick.....	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
Sewer Maintenance 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
Odor													
Neutaconkanut Reservoir..	0	0	0	0	0	0	0	0	0	0	0	0	0
Wayland 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
Post Road, Warwick.....	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
Sewer Maintenance 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

TABLE 14

WATER PURIFICATION WORKS

BACTERIOLOGICAL EXAMINATION OF WATER IN PROCESS OF FILTRATION

YEAR ENDED SEPTEMBER 30, 1952

1951-1952	BACTERIA per ml. (48 HOURS ON AGAR AT 20°C.)											
	Raw Water			Settled Water			Filtered Water			Tap Water		
	Max.	Min	Avg.	Max.	Min.	Avg.	Max.	Min	Avg.	Max.	Min	Avg.
Oct.	90	1	26	750	10	144	200	0	26	8	0	1
Nov.	140	4	38	370	70	219	80	0	46	30	0	2
Dec.	250	6	27	780	0	205	200	0	49	8	0	1
Jan.	9000	7	479	450	0	171	190	0	1	7	0	1
Feb.	1300	2	271	900	5	174	600	1	65	3	0	0
Mar.	24	4	12	900	1	250	500	2	90	4	0	0
Apr.	65	2	12	2000	4	282	600	0	140	20	0	3
May	25	0	12	1200	0	375	1000	0	274	80	0	6
June	50	2	17	1200	0	174	80	0	22	500	0	29
July	450	1	32	750	7	96	50	0	11	50	1	17
Aug.	55	0	17	5000	0	787	55	0	14	20	0	2
Sept.	40	1	16	900	9	204	30	0	7	4	0	0
For Year	9000	0	88	5000	0	257	1000	0	62	500	0	5

TABLE 15

WATER PURIFICATION WORKS

BACTERIOLOGICAL EXAMINATION OF WATER IN PROCESS OF FILTRATION

YEAR ENDED SEPTEMBER 30, 1952

1951-1952	BACTERIA per ml. (24 HOURS ON AGAR AT 37°C.)											
	Raw Water			Settled Water			Filtered Water			Tap Water		
	Max.	Min.	Avg	Max.	Min.	Avg.	Max	Min.	Avg.	Max.	Min.	Avg.
Oct.	230	5	34	450	1	59	22	0	3	300	0	16
Nov.	1400	0	89	400	0	21	80	0	5	200	0	8
Dec.	60	1	17	200	0	13	15	0	2	110	0	8
Jan.	1800	1	101	300	0	23	75	0	5	35	0	3
Feb.	1600	2	204	200	0	13	60	0	6	12	0	4
Mar.	150	1	11	17	0	1	8	0	1	12	0	1
Apr.	110	0	13	500	0	31	30	0	2	9	0	1
May	300	0	19	130	0	20	15	0	2	230	0	10
June	160	0	13	180	0	13	350	0	20	70	0	6
July	45	0	7	600	0	30	7	0	0	2	0	0
Aug.	130	0	8	4000	0	386	35	0	3	3	0	0
Sept.	130	0	15	900	0	64	3	0	0	1	0	0
For Year	1800	0	44	4000	0	56	350	0	4	300	0	5

TABLE 16

WATER PURIFICATION WORKS

BACTERIOLOGICAL EXAMINATION OF WATER IN PROCESS OF FILTRATION

YEAR ENDED SEPTEMBER 30, 1952

1951-1952	B. COLI											
	Raw Water			Settled Water			Filtered 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.	52	18	.035	52	1	.002	52	1	.002	130	0	.000
Nov.	48	43	.089	48	1	.002	48	0	.000	120	0	.000
Dec.	50	46	.092	50	6	.012	50	0	.000	125	0	.000
Jan.	52	36	.069	52	7	.013	52	1	.002	130	0	.000
Feb.	48	17	.035	48	1	.002	48	1	.002	120	6	.005
Mar.	52	2	.004	52	1	.002	52	0	.000	130	0	.000
Apr.	52	7	.013	52	3	.006	52	0	.000	130	0	.000
May	50	2	.004	50	0	.000	50	0	.000	125	1	.001
June	50	1	.002	50	0	.000	50	0	.000	125	0	.000
July	52	1	.002	52	0	.000	52	0	.000	130	0	.000
Aug.	50	2	.004	50	7	.014	50	0	.000	125	0	.000
Sept.	50	7	.014	50	1	.002	50	0	.000	125	0	.000
For Year	606	182	.030	606	28	.005	606	3	.000	1515	7	.000

TABLE 17

WATER PURIFICATION WORKS

BACTERIOLOGICAL EXAMINATION OF WATER IN VARIOUS BROOKS AND RESERVOIRS ON SCITUATE WATERSHED

YEAR ENDED SEPTEMBER 30, 1952

Monthly Analyses	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. Year
Bacteria Per Ml. 48 Hours on Agar at 20°C													
Coventry Brook	470	520	70	45	130	90	1500	1500	400	600	140	450	493
Wilbur Brook	600	130	600	80	35	160	500	1200	1900	**	300	950	587
Westconnaug Res. ...	70	160	750	75	45	30	140	550	50	50	50	700	222
Barden Reservoir ...	45	45	900	120	200	200	30	350	450	60	60	85	212
Cork Brook	110	2200	140	50	160	80	2000	45	300	70	38	**	472
Rush Brook	450	1400	200	110	50	40	1000	80	100	550	200	1500	473
Huntinghouse Brook	40	500	0	150	60	95	200	1300	240	460	190	190	285
Harrisdale Brook	90	240	1000	1000	50	50	150	440	300	420	250	150	345
Blanchard Brook	300	260	1200	60	45	85	350	350	2200	**	270	**	512
Moswansicut Pond ..	160	40	350	1200	25	120	400	320	200	500	300	210	319
Regulating Reservoir	200	750	190	90	45	110	1500	400	300	380	800	280	420
Quonapaug Brook ...	320	300	450	70	65	600	1200	800	1200	**	480	600	553
Hemlock Brook	20	180	2000	850	30	115	100	260	60	200	100	190	342
Betty Pond Stream..	500	95	1300	300	55	70	800	450	200	1200	550	700	518
Spruce Brook	350	1200	600	350	70	0	1500	600	200	1500	600	900	656
Bacteria Per Ml. 24 Hours on Agar at 37°C													
Coventry Brook	150	160	20	3	18	10	40	140	220	350	90	140	112
Wilbur Brook	120	250	40	9	11	12	45	28	400	**	80	320	119
Westconnaug Res. ...	20	40	65	3	14	7	7	32	40	18	35	350	52
Barden Reservoir ...	8	25	80	3	20	14	8	10	60	17	43	10	25
Cork Brook	35	70	30	5	3	15	120	9	70	9	50	**	38
Rush Brook	45	55	120	3	8	27	45	6	90	290	150	230	89
Huntinghouse Brook	30	20	0	16	25	36	20	45	120	400	70	65	70
Harrisdale Brook ...	30	50	7	9	15	11	14	20	35	210	95	110	50
Blanchard Brook	65	110	9	5	70	8	5	50	40	**	180	**	54
Moswansicut Pond ..	380	7	25	4	25	9	20	200	15	85	140	60	81
Regulating Reservoir	260	65	70	12	17	10	40	12	250	95	200	45	90
Quonapaug Brook ...	200	40	75	8	8	6	55	18	500	**	160	370	131
Hemlock Brook	55	20	60	1	15	60	7	4	30	60	75	9	33
Betty Pond Stream	320	40	40	7	10	18	50	35	120	230	130	350	112
Spruce Brook	50	90	35	12	12	0	60	20	115	500	185	80	96
B. Coli Index Per 100 Ml.													
Coventry Brook	110†	110†	10	0	0	0	25	70	70	110†	110†	110†	.....
Wilbur Brook	25	70	110†	0	6	0	70	25	110†	**	110†	110†	.....
Westconnaug Res. ...	0	25	70	0	25	5	13	70	6	0	0	0	.....
Barden Reservoir ...	13	70	25	0	6	0	110†	13	110†	110†	0	0	.....
Cork Brook	13	25	110†	0	25	0	70	25	13	0	0	**	.....
Rush Brook	110†	110†	70	5	6	25	110†	25	13	25	25	25	.....
Huntinghouse Brook.	0	70	110†	5	6	6	70	6	25	13	20	13	.....
Harrisdale Brook	6	110†	70	5	0	6	70	25	25	110†	25	13	.....
Blanchard Brook	70	110†	13	0	6	6	110†	25	70	**	110†	**	.....
Moswansicut Pond ..	13	25	20	0	25	6	110†	25	0	13	6	13	.....
Regulating Reservoir.	110†	110†	25	5	5	6	110†	25	25	5	110†	25	.....
Quonapaug Brook ...	70	70	110†	0	0	0	110†	13	110†	**	110†	110†	.....
Hemlock Brook	6	110†	110†	0	70	0	25	0	6	0	0	25	.....
Betty Pond Stream..	110†	25	13	0	0	0	110†	13	110†	25	13	6	.....
Spruce Brook	110†	110†	110†	0	0	25	110†	25	110†	110†	110†	25	.....

†Indicates Index of 110+
**No Sample Obtained—Brook Dry.

TABLE 18

WATER PURIFICATION WORKS

BACTERIOLOGICAL EXAMINATION OF WATER IN VARIOUS PARTS OF THE DISTRIBUTION SYSTEM

YEAR ENDED SEPTEMBER 30, 1952

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	1	1	2	1	0	0	1	1	20	101	1	11
Wayland Ave., Cranston...	0	0	1	0	1	0	1	1	0	2	1	0	0
Westminster St., Olneyville	0	1	1	0	0	0	2	2	0	0	0	0	0
Budlong Road, Cranston..	0	2	1	0	1	0	1	3	0	0	1	1	1
Reservoir Ave., Cranston..	3	1	0	0	0	0	2	0	29	14	0	0	4
Post Road, Warwick.....	0	4	4	0	1	0	3	1	1	0	4	2	2
Biltmore Hotel	0	2	1	1	11	0	1	4	0	0	1	0	2
Crown Hotel	0	2	0	2	0	0	1	5	0	0	0	1	1
Sewer Maintenance Bldg...	3	7	2	5	20	0	2	1	2	0	0	0	3
Longview Reservoir	10	1	2	19	3	0	2	2	1	0	0	0	3
Bacteria Per Ml. 24 Hours on Agar at 37°C													
Neutaconkanut Reservoir..	156	77	2	3	4	2	4	4	1	0	1	4	21
Wayland Ave., Cranston...	8	63	8	2	8	0	3	1	0	2	0	0	8
Westminster St., Olneyville	38	21	5	1	7	2	0	8	0	3	2	0	7
Budlong Road, Cranston..	31	49	2	3	4	0	0	2	1	0	21	0	9
Reservoir Ave., Cranston..	71	4	3	1	3	1	0	0	15	0	0	0	8
Post Road, Warwick.....	1	2	15	3	6	0	5	3	1	0	25	0	5
Biltmore Hotel	20	12	13	9	51	4	17	17	0	1	0	0	12
Crown Hotel	9	21	31	6	3	3	2	1	0	0	0	0	6
Sewer Maintenance Bldg...	2	66	4	15	1	0	0	4	0	1	4	0	8
Longview Reservoir	8	16	27	22	8	2	0	3	1	9	0	0	8
B. Coli Index Per Ml.													
Neutaconkanut Reservoir..	0.000	0.000	0.000	.000	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Wayland Ave., Cranston...	.000	.000	.001	.000	.001	.000	.000	.000	.000	.000	.000	.000	.000
Westminster St., Olneyville	.000	.000	.004	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Budlong Road, Cranston..	.000	.001	.001	.000	.000	.000	.001	.000	.000	.000	.000	.000	.000
Reservoir Ave., Cranston..	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.001	.000
Post Road, Warwick.....	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Biltmore Hotel	.000	.000	.000	.001	.004	.000	.000	.000	.000	.000	.000	.000	.000
Crown Hotel	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Sewer Maintenance Bldg...	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.001	.000
Longview Reservoir	.004	.000	.000	.000	.002	.000	.003	.000	.001	.000	.000	.000	.001

TABLE 19

WATER PURIFICATION WORKS

MINERAL ANALYSIS OF WATER—YEAR ENDED SEPT. 30, 1952

Parts per Million	RAW WATER*					TAP WATER				
	1951	1952			Avg.	1951	1952			Avg.
	Oct.-Dec.	Jan.-Mar.	Apr.-June	July-Sept.		Oct.-Dec.	Jan.-Mar.	Apr.-June	July-Sept.	
Aluminum	0.00	0.01	0.00	0.00	0.00	0.02	0.03	0.03	0.03	0.03
Arsenic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Calcium	2.49	2.60	3.04	3.11	2.81	8.15	7.34	8.78	6.64	7.73
Chloride	3.40	3.35	3.10	3.00	3.21	3.48	3.40	3.27	3.50	3.41
Copper	0.02	0.02	0.04	0.04	0.03	0.02	0.01	0.03	0.01	0.02
Fluoride	0.12	0.19	0.15	0.19	0.16	0.12	0.15	0.13	0.93	0.33
Hardness	11	11	10	10	10	25	25	27	27	26
Iron	0.09	0.05	0.03	0.17	0.08	0.01	0.02	0.02	0.01	0.01
Lead	0.000	0.000	0.000	0.006	0.000	0.008	0.010	0.006	0.007	0.008
Magnesium	0.70	0.70	0.50	0.40	0.57	0.70	0.70	0.54	0.50	0.61
Manganese	0.09	0.02	0.01	0.10	0.05	0.00	0.00	0.00	0.00	0.00
Phenolic Compounds	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Selenium	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Silica	4.50	5.00	5.00	3.00	4.37	3.80	4.00	4.50	2.50	3.70
Sulphate	6.22	6.50	6.35	6.70	6.44	12.08	11.75	11.90	11.10	11.71
Total Solids	32	22	32	41	32	47	55	53	47	50
Loss On Ignition	18	16	16	19	17	21	26	26	19	23
Total Alkalinity	4.70	4.77	4.73	5.33	4.88	13.90	13.80	14.60	16.10	14.60
Phenolphthalein Alk.	0.00	0.00	0.00	0.00	0.00	7.20	7.17	7.30	8.07	7.43
Zinc	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

*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, 1952

1951–1952	RAW WATER*									TAP WATER									1951–1952
	Ammonia		Nitrites	Nitrates	Chlorides	Dissolved Oxygen		Total Solids	Loss on Ignition	Ammonia		Nitrites	Nitrates	Chlorides	Dissolved Oxygen		Total Solids	Loss on Ignition	
	Free	Alb.				P.P.M.	% Sat.			Free	Alb.				P.P.M.	% Sat.			
Oct.	0.052	0.060	0.000	0.02	4.0	8.5	82.9	30	17	0.032	0.063	0.000	0.04	4.0	..	..	49	24	Oct.
Nov.	0.088	0.108	0.000	0.04	3.5	10.4	93.3	33	19	0.072	0.082	0.000	0.06	3.5	..	..	49	21	Nov.
Dec.	0.080	0.081	0.000	0.04	3.5	12.1	90.9	32	19	0.064	0.051	0.000	0.03	3.5	..	..	42	17	Dec.
Jan.	0.056	0.092	0.000	0.02	3.5	13.3	96.2	33	18	0.064	0.050	0.000	0.03	3.5	..	..	56	31	Jan.
Feb.	0.064	0.072	0.000	0.10	3.5	13.2	91.7	32	16	0.056	0.040	0.000	0.08	3.5	..	..	53	24	Feb.
Mar.	..	..	0.000	0.05	3.2	..	..	30	14	..	..	0.000	0.05	3.2	..	..	57	22	Mar.
Apr.	..	..	0.000	0.02	3.3	..	..	28	13	..	..	0.000	0.03	3.3	..	..	49	22	Apr.
May	..	..	0.000	0.03	3.0	10.1	93.7	33	18	..	..	0.000	0.05	3.0	..	..	56	31	May
June	0.080	0.072	0.001	0.02	3.0	8.3	80.8	35	17	0.060	0.037	0.000	0.05	3.5	..	..	56	25	June
July	0.112	0.077	0.000	0.08	3.0	5.5	54.4	37	17	0.054	0.040	0.002	0.10	3.5	..	..	56	18	July
Aug.	..	..	0.000	0.10	3.0	3.8	37.4	33	19	..	..	0.001	0.15	3.5	..	..	50	21	Aug.
Sept.	..	..	0.000	0.00	3.0	..	..	53	22	..	..	0.001	0.10	3.5	..	..	36	19	Sept.
Avg.	0.076	0.080	0.000	0.04	3.3	9.5	80.1	34	17	0.057	0.052	0.000	0.06	3.5	..	..	51	23	Avg.

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

TABLE 21

WATER PURIFICATION WORKS

LABORATORY EXAMINATIONS MADE DURING THE FISCAL YEAR ENDED SEPTEMBER 30, 1952

	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								
	Ten Brooks and One Stream	Monthly	889	1,046	..	..	..	..	1,935
II	SMALLER STORAGE RESERVOIRS ON WATERSHED								
	Regulating Reservoir	Monthly	84	86	..	..	..	..	170
	Westconnaug Reservoir	Monthly	84	95	..	..	..	..	179
	Barden Reservoir	Monthly	84	94	..	..	..	..	178
	Moswansicut Pond	Monthly	84	101	..	..	..	..	185
III	SCITUATE RESERVOIR								
	Surface Water	Weekly	287	..	12	213	..	..	512
	Subsurface Water (See Purif. Wks.—Raw Water)	.....	..	..	..	..	..	..	..
IV	PAWTUXET RIVER—BELOW SCITUATE DAM								
	Scituate Dam Meter Chamber	Bi-Weekly	252	..	..	213	..	..	465
	Fiskeville, R. I.	Bi-Weekly	252	..	..	213	..	..	465
	Twelve other locations on Pawtuxet River	Bi-Weekly	3,240	..	..	2,988	..	..	6,228
V	WATER PURIFICATION WORKS								
	Raw Water (from Bottom of Scit. Res.)	Daily	2,965	1,397	..	1,432	..	..	5,794
	Raw Water (from Bottom of Scit. Res.)	Weekly	..	..	12	52*	..	..	64
	Raw Water (from Bottom of Scit. Res.)	Monthly	..	..	..	92**	..	..	92
	***Raw Water (from Bottom of Scit. Res.)	Every 13 weeks	..	..	..	..	80	..	80
	Aerated Influent	Daily	716	..	..	..	..	..	716
	Mixer	Daily	2,148	..	..	..	..	..	2,148
	Settled	Daily	2,804	1,242	..	..	..	..	4,046
	Settled	Weekly	..	..	12	52*	..	..	64
	Settled	Monthly	..	..	..	54**	..	..	54
	Filtered	Daily	1,074	..	..	..	..	..	1,074
	Filtered	Monthly	..	..	..	54**	..	..	54
	Unchlorinated Effluent	Daily	2,804	1,216	..	1,432	..	..	5,452
	Unchlorinated Effluent	Weekly	..	..	12	52*	..	..	64
	Unchlorinated Effluent	Monthly	..	..	..	54**	..	..	54
	Chlorinated Effluent	Daily	1,256	1,738	..	1,235	..	..	4,229
	Raw Water (from Bottom of Scituate Reservoir)	Daily at 3:00 P.M	988	1,152	..	988	..	..	3,128
	Unchlorinated Effluent	Daily at 3:00 P.M	988	989	..	988	..	..	2,965

Table 21 (Continued)

WATER PURIFICATION WORKS

LABORATORY EXAMINATIONS MADE DURING THE FISCAL YEAR ENDED SEPTEMBER 30, 1952

	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	1,256	1,741	..	988	..	..	3,985
	Sample from nearby Tap	Weekly	..	..	12	..	..	..	12
VII	LONGVIEW DISTRIBUTION RESERVOIR								
	Sample from nearby Tap	Daily	1,256	1,747	..	988	..	..	3,991
	Sample from nearby Tap	Weekly	..	..	12	..	..	..	12
VIII	DISTRIBUTION SYSTEM								
	Water Supply Board Building Tap Water	Daily	2,465	2,128	..	915	..	..	5,508
	Water Supply Board Building Tap Water	Weekly	..	..	12	..	..	..	12
	Water Supply Board Building Tap Water	Monthly	..	..	..	74**	..	..	74
	***Water Supply Board Building Tap Water	Every 13 Weeks	..	..	..	..	80	..	80
	****Sectional Tests	Monthly	528	384	..	288	..	..	1,200
	Consumers' Complaints (48 during the year)	.....	340	44	..	114	..	..	498
	Sterilization of Newly Laid Mains	.....	456	1,840	..	..	..	..	2,296
	‡Sectional Tests	Daily	8,792	12,176	..	6,916	..	..	27,884
IX	MISCELLANEOUS TESTS								
	Coagulation Tests to Determine Chemical Dosages	.....	..	..	..	..	..	200	200
	Analysis of Ferri-Floc used for Treatment	.....	..	..	..	..	..	126	126
	Analysis of Quicklime used for Treatment	.....	..	..	..	..	..	39	39
	Samples from Plant Filters	.....	5,598	3,863	..	3,838	..	697	13,996
	Water, Filter Sand and Other Materials; also Laboratory and Filter Plant Instruments	.....	880	1,409	..	654	..	..	2,943
	Totals	.....	42,570	34,488	84	24,887	160	1,062	103,251

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

TABLE 22

WATER DISTRIBUTION SYSTEM

NEUTACONKANUT HIGH SERVICE PUMPING STATION—OPERATING STATISTICS

1951–1952	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′			Power Used*		No. 3—16″ Pump 7500 GPM. TDH 80′							
	Operated		Water Pumped — Mil. Gals.	Operated		Water Pumped — Mil. Gals.	KWH	Cost	Operated		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.	31	622–45	98.92	0	0	0	36,600	$609.08	0	0	0	0	0	98.92	3.19	257
Nov.	30	583–00	92.29	0	0	0	37,200	618.61	1	0–30†	0	10	0.2	92.29	3.08	631
Dec.	31	601–30	94.85	0	0	0	29,700	549.98	1	1–00†	0	15	0.4	94.85	3.06	925
Jan.	31	608–30	95.32	0	0	0	36,600	621.91	1	0–43†	0	12	0.3	95.32	3.07	963
Feb.	29	573–45	90.30	0	0	0	40,200	662.09	1	0–30†	0	8	0.2	90.30	3.11	917
Mar.	31	591–15	92.08	0	0	0	33,000	586.74	1	0–35†	0	9	0.2	92.08	2.97	854
Apr.	30	587–00	92.35	0	0	0	35,700	613.76	1	0–45†	0	12	0.3	92.35	3.07	492
May	31	634–30	100.46	0	0	0	37,500	634.18	0	0	0	0	0	100.46	3.24	288
June	28	606–15	102.49	3	67–30	11.98	32,100	580.94	0	0	0	0	0	114.47	3.82	40
July	13	250–00	46.58	22	465–00	117.00	69,900	1,054.06	0	0	0	0	0	163.58	5.28	0
Aug.	25	512–30	82.04	6	120–45	30.47	50,700	845.20	0	0	0	0	0	112.51	3.63	0
Sept.	30	633–00	100.31	0	0	0	39,600	674.90	1	0–45†	0	12	0.3	100.31	3.34	35
Totals	340	6,804–00	1,087.99	31	653–15	159.45	478,800	$8,051.45	7	4–50	0	78	1.9	1247.44	3.41	5402

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

TABLE 23

WATER DISTRIBUTION SYSTEM

BATH STREET HIGH SERVICE PUMPING STATION—OPERATING STATISTICS

1951–1952	ELECTRICALLY-DRIVEN PUMPS								GASOLINE ENGINE-DRIVEN PUMPS										TOTAL WATER PUMPED — Mil. Gals.		Fuel Oil Used for Heating — Gals.
	Pump No. 1 2000 GPM. TDH 98′			Pump No. 2 2000 GPM. TDH 98′			Power Used*		Pump No. 3 2000 GPM. TDH 98′: 150 HP Sterling Engine					Pump No. 4 2000 GPM. TDH 98′: 150 HP Sterling Engine							
	Operated		Water Pumped — Mil. Gals.	Operated		Water Pumped — Mil. Gals.	KWH	Cost	Operated		Water Pumped — Mil. Gals.	Gasoline Used — Gals.	Oil Used — Qts.	Operated		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				Days	Hours and Minutes						
Oct.	0	0	0	31	569–15	78.75	30,300	$439.34	1	1–45	0.24	14	0.9	1	2–45	0.39	22	2.0	79.38	2.56	63
Nov.	30	586–30	81.67	0	0	0	34,800	493.39	0	0	0	0	0	0	0	0	0	0	81.67	2.72	92
Dec.	31	584–00	82.50	0	0	0	27,300	417.96	1	2–00	0.27	16	1.0	0	0	0	0	0	82.77	2.67	245
Jan.	0	0	0	31	602–15	83.72	34,050	498.51	0	0	0	0	0	0	0	0	0	0	83.72	2.70	265
Feb.	4	74–30	10.41	25	480–45	66.68	36,750	534.83	0	0	0	0	0	0	0	0	0	0	77.09	2.66	263
Mar.	0	0	0	31	595–00	82.36	31,050	467.83	0	0	0	0	0	0	0	0	0	0	82.36	2.66	184
Apr.	30	574–45	80.52	0	0	0	33,450	496.49	0	0	0	0	0	0	0	0	0	0	80.52	2.68	65
May	30	571–30	79.58	1	16–30	2.35	32,400	486.72	0	0	0	0	0	0	0	0	0	0	81.93	2.64	0
June	30	574–30	79.48	0	0	0	27,750	432.83	3	17 00	3.56	136	14.0	2	8–00	1.76	64	6.0	84.80	2.83	0
July	31	673–30	93.54	4	28–45	3.36	40,800	581.50	6	74–45	7.28	598	44.0	6	64–30	6.71	516	40.0	110.89	3.58	0
Aug.	31	516–30	73.16	0	0	0	31,650	561.50	0	0	0	0	0	0	0	0	0	0	73.16	2.36	0
Sept.	30	570–00	79.70	0	0	0	32,550	570.18	0	0	0	0	0	1	2–00	0.25	16	2.0	79.95	2.66	0
Totals	247	4725–45	660.56	123	2292–30	317.22	392,850	$5,981.08	11	95–30	11.35	764	59.9	10	77–15	9.11	618	50.0	998.24	2.73	1177

*Narragansett Electric Co. Power Rate H.

TABLE 24

WATER DISTRIBUTION SYSTEM

NEUTACONKANUT DISTRIBUTION RESERVOIR*

OPERATING STATISTICS FOR YEAR ENDED SEPTEMBER 30, 1952

1951–1952	7 A.M. Statistics on First Day of Month		OPERATING CHARACTERISTICS DURING MONTH											
	Water Level	Storage Mil. Gals.	Water Level			Storage—Mil. Gals.			Daily Water Level Fluctuation—Ft.			Daily Storage Fluctuation—M. G.		
			Max.	Min.	Avg.†	Max.	Min.	Avg.†	Max.	Min.	Avg.	Max.	Min.	Avg.
Oct.	225.95	40.25	226.35	222.47	225.87	40.95	34.13	40.11	3.79	1.75	2.62	6.66	3.18	4.54
Nov.	226.30	40.86	226.32	222.63	225.82	40.90	34.41	40.02	3.62	1.69	2.63	6.37	2.97	4.62
Dec.	225.52	39.50	226.38	222.44	225.73	41.00	34.07	39.86	3.63	1.57	2.54	6.38	2.77	4.44
Jan.	225.73	39.86	226.28	222.65	225.84	40.83	34.44	40.06	3.57	1.63	2.59	6.28	2.87	4.52
Feb.	225.95	40.25	226.58	222.49	225.82	41.36	34.16	40.02	3.59	1.12	2.59	6.31	1.97	4.53
Mar.	226.13	40.57	226.18	222.46	225.85	40.16	34.11	40.08	3.62	1.98	2.71	6.36	3.49	4.72
Apr.	225.87	40.11	226.31	222.86	225.88	40.88	34.81	40.13	3.32	1.57	2.43	5.84	2.66	4.25
May	226.24	40.76	226.43	222.26	226.02	41.09	33.76	40.37	3.95	2.09	2.80	6.95	3.68	4.93
June	225.55	40.37	226.55	219.47	226.02	41.30	28.85	40.37	6.40	1.55	3.01	11.26	2.73	5.27
July	226.23	40.74	226.45	220.60	226.09	41.12	30.84	40.50	5.61	1.52	3.62	9.87	2.67	6.35
Aug.	226.11	40.53	226.50	222.67	226.01	41.21	34.48	40.36	3.43	1.73	2.53	6.03	3.04	4.44
Sept.	226.06	40.44	226.25	220.96	225.85	40.77	31.47	40.08	5.02	2.31	3.15	8.83	3.91	5.62
For Year	—	—	226.58	219.47	225.90	41.36	28.85	40.16	6.40	1.12	2.77	11.26	1.97	4.85

*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, 1952

1951–1952	7 A.M. Statistics on First Day of Month		OPERATING CHARACTERISTICS DURING 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.	304.17	11.55	304.91	302.73	304.13	11.90	10.89	11.53	1.95	1.05	1.46	0.97	0.49	0.70
Nov.	304.02	11.48	305.00	302.99	304.25	11.94	11.01	11.59	1.75	1.07	1.38	0.82	0.44	0.64
Dec.	304.19	11.56	304.80	302.92	304.25	11.85	10.97	11.59	1.72	1.07	1.13	0.79	0.49	0.61
Jan.	304.14	11.54	304.84	302.87	304.08	11.86	10.95	11.51	1.89	0.98	1.28	0.87	0.46	0.59
Feb.	304.20	11.56	304.76	302.76	304.15	11.83	10.90	11.54	1.69	0.97	1.31	0.80	0.45	0.61
Mar.	304.30	11.61	304.82	302.87	304.17	11.86	10.95	11.55	1.92	1.05	1.38	0.89	0.49	0.64
Apr.	304.47	11.69	304.81	302.61	304.23	11.85	10.83	11.58	2.01	0.56	1.42	0.93	0.26	0.66
May	303.75	11.36	304.81	302.15	304.15	11.85	10.62	11.54	2.39	1.22	1.60	1.11	0.56	0.74
June	304.34	11.63	304.95	298.84	304.03	11.92	9.08	11.48	5.10	1.10	2.26	2.36	0.51	1.04
July	304.50	11.71	305.10	299.61	304.33	11.99	9.44	11.63	5.29	1.63	3.33	2.46	0.76	1.54
Aug.	304.82	11.86	305.32	302.24	304.39	12.09	10.66	11.65	2.31	1.17	1.54	1.07	0.58	0.74
Sept.	304.60	11.75	304.88	301.12	304.27	11.88	10.14	11.60	3.76	1.05	1.74	1.74	0.49	0.80
For Year	—	—	305.32	298.84	304.20	12.09	9.08	11.56	5.29	0.97	1.65	2.46	0.26	0.78

*Storage capacity at overflow elevation of 306.00=12,400,000 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 REPLACED
FOR YEAR ENDED SEPT. 30, 1952

	PIPE LAID IN FEET (Including Pipe Replaced)								
	6"	8"	10"	12"	16"	20"	24"	30"	Totals
Providence	9,467.34	1,092.32	0	4,316.99	722.66	475.10	0	8,312.64	24,387.05
Cranston	20,463.44	23,591.31	0	3,809.70	50.59	0	2,411.77	11,018.51	61,345.32
Johnston	6,351.01	1,611.76	0	0	0	0	0	0	7,962.77
No. Providence	9,914.89	6,290.12	0	0	0	0	0	0	16,205.01
Pawtucket	0	0	0	0	0	0	0	0	0
Totals	46,196,.68	32,585.51	0	8,126.69	773.25	475.10	2,411.77	19,331.15	109,900.15

	PIPE REMOVED IN FEET (Including Pipe Replaced)								
	6"	8"	10"	12"	16"	20"	24"	30"	Totals
Providence	2,229.14	501.50	168.50	14.50	672.96	524.19	0	0	4,110.79
Cranston	991.83	678.00	0	78.10	0	0	13.51	0	1,761.44
Johnston	111.30	0	0	0	0	0	0	0	111.30
No. Providence	0	8.50	0	0	0	0	0	0	8.50
Pawtucket	0	0	0	0	0	0	0	0	0
Totals	3,332.27	1,188.00	168.50	92.60	672.96	524.19	13.51	0	5,992.03

TABLE 26 (Continued)

WATER PIPE LAID, REMOVED AND REPLACED
FOR YEAR ENDED SEPT. 30, 1952

	NET LENGTH OF PIPE IN FEET ADDED TO DISTRIBUTION SYSTEM								
	6"	8"	10"	12"	16"	20"	24"	30"	Totals
Providence	+ 7,238.20	+ 590.82	- 168.50	+4,302.49	+ 49.70	-49.09	0	+ 8,312.64	+ 20,276.26
Cranston	+19,471.61	+22,913.31	0	+3,731.60	+ 50.59	0	+2,398.26	+11,018.51	+ 59,583.88
Johnston	+ 6,239.71	+ 1,611.76	0	0	0	0	0	0	+ 7,851.47
No. Providence	+ 9,914.89	+ 6,281.62	0	0	0	0	0	0	+ 16,196.51
Pawtucket	0	0	0	0	0	0	0	0	0
Totals	+42,864.41	+31,397.51	-168.50	+8,034.09	+100.29	-49.09	+2,398.26	+19,331.15	+103,908.12

	PIPE REPLACED IN FEET								
	6"	8"	10"	12"	16"	20"	24"	30"	Totals
Providence	1,155.99	86.00	*168.50	14.50	346.01	524.19	0	0	2,295.19
Cranston	632.05	0	0	78.10	0	0	**13.51	0	723.66
Johnston	111.30	0	0	0	0	0	0	0	111.30
No. Providence	0	6.50	0	0	0	0	0	0	6.50
Pawtucket	0	0	0	0	0	0	0	0	0
Totals	1,899.34	92.50	168.50	92.60	346.01	524.19	13.51	0	3,136.65

*Replaced with 12" C. I. Pipe **Replaced with 30" C. I. Pipe

TABLE 27

PUBLIC WATER MAINS IN USE ON SEPT. 30, 1952

Diameter of Pipe	Providence*		Cranston		Johnston		N. Providence		Pawtucket		Total*		SPECIAL HIGH PRESSURE FIRE SERVICE Providence	
	Feet	Miles	Feet	Miles	Feet	Miles	Feet	Miles	Feet	Miles	Feet	Miles	Feet	Miles
6-inch....	1,501,665.64	284.41	538,034.11	101.90	85,618.38	16.22	106,417.97	20.15	870.98	0.16	2,232,607.08	422.84	82.06	0.02
8-inch....	318,697.27	60.36	177,061.18	33.53	82,945.41	15.71	58,594.36	11.10	0	0	637,298.22	120.70	1,577.52	0.30
10-inch....	14,083.03	2.67	0	0	0	0	0	0	0	0	14,083.03	2.67	0	0
12-inch....	232,183.80	43.97	87,564.76	16.58	8,804.40	1.67	28,359.32	5.37	44.88	0.01	356,957.16	67.61	6,893.80	1.31
16-inch....	83,160.73	15.75	3,511.86	0.67	1,487.09	0.28	0	0	0	0	88,159.68	16.70	54,248.24	10.27
20-inch....	16,261.89	3.08	0	0	0	0	0	0	0	0	16,261.89	3.08	0	0
24-inch....	52,205.87	9.89	5,235.73	0.99	561.79	0.11	2,383.39	0.45	0	0	60,386.78	11.44	4,299.44	0.81
30-inch....	46,120.89	8.74	29,179.60	5.53	0	0	3,733.40	0.71	0	0	79,033.89	14.97	0	0
36-inch....	4,556.20	0.86	5,157.50	0.98	0	0	0	0	0	0	9,713.70	1.84	0	0
42-inch....	2,902.94	0.55	22,583.62	4.28	0	0	0	0	0	0	25,486.56	4.83	0	0
48-inch....	14,918.00	2.83	1,584.00	0.30	394.00	0.07	0	0	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	0	0	20,570.00	3.90	0	0
66-inch....	0	0	8,448.00	1.60	0	0	0	0	0	0	8,448.00	1.60	0	0
Totals.....	2,292,315.26	434.15	889,031.36	168.38	184,151.07	34.88	199,488.44	37.78	915.86	0.17	3,565,901.99	675.36	67,101.06	12.71

*High Pressure Fire Service in Providence not included.

TABLE 28

GATES IN USE ON SEPT. 30, 1952

City or Town	Stop Gates												Gates on Public Fire Hydrants				Gates on Unwatering Hydrants		Gates on Blowoffs				Total Gates in use at end of year
	6"	8"	10"	12"	16"	20"	24"	30"	36"	42"	48"	Total	4"	6"	8"	Total	6"	8"	6"	8"	12"	Total	
Providence	4783	1033	24	654	262	23	68	34	8	1	10	*6900	0	341	1900	2241	2	14	1	2	1	4	*9161
Cranston	1404	417	0	176	10	0	10	14	6	10	3	*2050	1	519	1	521	3	5	0	2	3	5	*2584
Johnston	212	138	0	19	3	0	0	0	0	0	1	373	0	172	13	185	0	0	0	0	2	2	560
N. Providence	241	99	0	63	0	0	2	0	0	0	0	405	0	213	0	213	0	3	0	0	0	0	621
Totals	6640	1687	24	912	*275	23	80	48	14	11	14	9728	1	1245	1914	3160	5	22	1	4	6	11	12926

Note: Above table includes all gates in the special high pressure fire system in Providence (126) and gates on Neutaconkanut Conduit and Scituate Aqueduct east of the Siphon Chamber.

*Totals include 5 16" Rotary Plug Valves in Providence and 5 Rotary Plug Valves in Cranston.

TABLE 29

STATISTICS RELATIVE TO PRIVATE WATER PIPES
FOR YEAR ENDED SEPT. 30, 1952

City or Town	Number of Private Pipes in the Ground				Number of Services on Private Pipes			
	At the Beginning of the Year	Installed During the Year	Disconnected During the Year	At the End of the Year	At the Beginning of the Year	Installed During the Year	Transferred from Private Pipes to Public Mains	At the End of the Year
Providence	211	0	2	209	331	1	11	321
Cranston	118	0	8	110	254	1	33	222
Johnston	28	0	0	28	39	0	1	38
N. Providence	39	0	2	37	95	0	21	74
Totals	396	0	12	384	719	2	66	655

TABLE 30

SERVICE PIPES INSTALLED, REMOVED, ETC., FOR YEAR ENDED SEPT. 30, 1952

City or Town	Installed			Cut-Off or Removed			Replaced		Repaired		
	General		Fire Supply	General		Fire Supply	General		General		Fire Supply
	Copper ¾"-2"	Cast Iron 2"-12"	Cast Iron 4"-8"	Lead or Copper ½"-1½"	Cast Iron 2"-8"	Cast Iron 4"	Lead or Copper ½"-1"	Cast Iron	Lead or Copper ¼"-1¼"	Cast Iron 2"-6"	Cast Iron 4"-6"
Providence	498	24	10	91	6	1	9	0	30	8	2
Cranston	542	15	2	16	0	0	5	0	30	1	0
Johnston	111	1	0	1	0	0	0	0	1	0	0
North Providence	145	3	0	2	0	0	0	0	3	0	0
Pawtucket	0	0	0	0	0	0	0	0	0	0	0
Totals	1296	43	12	110	6	1	14	0	64	9	2

Total number of services in the System as of Sept. 30, 1952—63,457.

TABLE 31

METERED SERVICES INSTALLED, REOPENED, CLOSED AND IN USE AT END OF FISCAL YEAR

City or Town	Metered Services Put Into Use for the First Time			Reopened or Reconnected			Closed, Cut Off or Removed			Net Change for the Year in Total Number of Metered Services in Use				Total Number of Metered Services in Use on Sept. 30, 1952			
	General Supply		Fire Supply	General Supply		Fire Supply	General Supply		Fire Supply	General Supply		Fire Supply	General and Fire Supplies Combined	General Supply		Fire Supply	General and Fire Supplies Combined
	Lead or Copper ½"-2"	Cast Iron 2"-12"	Cast Iron 4"-8"	Lead on Copper ½"-2"	Cast Iron 2"-6"	Cast Iron 4"-8"	Lead on Copper ½"-2"	Cast Iron 2"-6"	Cast Iron 4"-8"	Lead or Copper ½"-2"	Cast Iron 2"-4"	Cast Iron 4"-8"		Lead or Copper ½"-2"	Cast Iron 2"-16"	Cast Iron 4"-8"	
Providence	338	28	52	315	20	20	301	30	19	+ 352	+18	+53	+ 423	36,015	1001(a	550	37,566
Cranston	542	18	6	63	1	1	78	3	0	+ 527	+16	7	+ 550	12,100	135(b	59	12,294
Johnston	113	1	0	16	0	1	11	1	0	+ 118	0	+ 1	+ 119	2,012	18	5	2,035
North Providence	146	5	0	4	0	0	9	0	0	+ 141	+ 5	0	+ 146	2,259	31(c	7	2,297
Pawtucket	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5
Totals	1139	52	58	398	21	22	399	34	19	+1138	+39	+61	+1238	52,391	1185	621	54,197

(a) Includes two 4" elevator supplies with "counters" for measuring the use of water.
(b) Includes 12" service with 12" protectus meter supplying part of City of Warwick, 12" service with 12" x 4" venturi meter to State Institutions, and 12" service with 12" crest meter supplying Kent County Water Authority.
(c) Includes 12" service with 12" crest meter supplying East Smithfield Water Company.
Total Number of Services in Use on Sept. 30, 1952—54,711 (54,197 Metered; 514 Unmetered).

TABLE 32

UNMETERED SERVICES, CLOSED AND IN USE AT END OF FISCAL YEAR

City or Town	Closed, Cut Off Removed or Metered				Total Number of Unmetered Services in Use on September 30, 1952			
	General Supply		Fire Supply	General and Fire Supplies Combined	General Supply		Fire Supply	General and Fire Supplies Combined
	Lead or Copper ½"-1¼"	Cast Iron 2"-8"	Cast Iron 4"-8"		Lead or Copper ½"-1¼"	Cast Iron 2"-8"	Cast Iron 4"-10"	
Providence	0	0	46	46	137	13	348	498
Cranston	0	0	3	3	4	0	9	13
Johnston	0	0	0	0	2	0	1	3
North Providence	0	0	0	0	0	0	0	0
Totals	0	0	49	49	143	13	358	514

Total number of Services in Use on Sept. 30, 1952—54,711 (54,197 Metered; 514 Unmetered).

TABLE 33

PUBLIC FIRE HYDRANTS

HYDRANT ACTIVITIES DURING YEAR ENDED SEPT. 30, 1952

City or Town	Providence	Cranston	Johnston	No. Prov.	Totals
New Post Hydrant Installations	31	12	0	7	50
Flush Hydrants replaced with Post Hydrants	81*	0	0	0	81*
Post Hydrants replaced	0	6	4	2	12
Flush Hydrants removed or abandoned	3**	0	0	0	3**

*Includes 11 Hydrants in Special High Service Fire System.
**Includes 1 Hydrant in Special High Service Fire System.

TABLE 34

TOTAL PUBLIC HYDRANTS IN DISTRIBUTION SYSTEM ON SEPT. 30, 1952**

City or Town	Providence*		Cranston	Johnston		No. Prov.	Totals in Providence, Cranston, Johnston & No. Prov.		
Type of Hydrant	Flush	Post	Post	Flush	Post	Post	Flush	Post	Flush & Post Combined
Number in System	2558	517	525	20	191	212	2578	1445	4023*

*Includes 106 Flush Hydrants and 51 Post 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 35

NUMBER, MAKE AND SIZE OF METERS ON ACTIVE SERVICES
AS OF SEPTEMBER 30, 1952

PROVIDENCE

MAKE	5/8"	3/4"	1"	1½"	2"	3"	4"	6"	8"	10"	12"	16"	Total
Crown	351	314	75	158	58	15	16	....	....	....	....	....	987
Empire	3,321	220	31	144	52	2	2	1	2	....	....	....	3,775
Hersey	....	....	....	3	4	3	15	75	9	....	....	....	109
Thomson	11,742	1157	468	44	149	....	....	....	....	....	....	....	13,560
Trident	15,587	1370	430	476	714	108	79	46	3	5	....	....	18,818
Venturi	....	....	....	....	....	....	....	....	2	....	....	2	4
Elevator Counter	....	....	....	....	....	....	1	....	....	....	....	....	1
TOTALS	31,001	3061	1004	825	977	128	113	122	16	5	....	2	37,254

CRANSTON

MAKE	5/8"	3/4"	1"	1½"	2"	3"	4"	6"	8"	10"	12"	16"	Total
Crown	23	3	4	6	....	....	....	....	....	....	....	....	36
Empire	540	13	4	10	5	....	....	....	....	....	....	....	572
Hersey	....	....	....	....	....	....	....	4	4	....	....	....	8
Thomson	3,174	93	53	1	14	....	....	....	....	....	....	....	3,337
Trident	7,859	238	71	72	52	3	9	9	3	*1	2	....	8,319
Venturi	....	....	....	....	....	....	....	....	....	....	1	....	1
TOTALS	11,596	349	132	89	71	3	9	13	7	1	3	....	12,273

*10" Protectus supplying City of Warwick.

JOHNSTON

MAKE	5/8"	3/4"	1"	1½"	2"	3"	4"	6"	8"	10"	12"	16"	Total
Crown	....	....	....	2	....	....	....	....	....	....	....	....	2
Empire	2	....	....	2	....	....	....	....	....	....	....	....	4
Thomson	356	21	9	....	2	....	....	....	....	....	....	....	388
Trident	1,352	47	15	13	6	....	....	....	*1	....	....	....	1,434
TOTALS	1,710	68	24	17	8	....	....	....	1	....	....	....	1,828

*8" Crest Meter in Dean Ave., Smithfield, supplying East Smithfield Water Co.

NORTH PROVIDENCE

MAKE	5/8"	3/4"	1"	1½"	2"	3"	4"	6"	8"	10"	12"	16"	Total
Crown	....	....	2	....	....	....	....	....	....	....	....	....	2
Empire	6	....	6	....	1	....	....	....	....	....	....	....	13
Hersey	....	....	....	....	....	....	....	5	....	....	....	....	5
Thomson	522	19	10	1	1	....	....	....	....	....	....	....	553
Trident	*1595	66	13	11	6	2	2	1	....	....	**1	....	1,697
TOTALS	2,123	85	31	12	8	2	2	6	....	....	1	....	2,270

*Six in Pawtucket, just over North Providence line.
**12" Crest Meter in Waterman St., (N. Prov.), supplying East Smithfield Water Co.

TABLE 36

CONSUMPTION OF WATER — MILLION GALLONS

YEAR ENDED SEPTEMBER 30, 1952

1951-1952	LOW SERVICE*				HIGH SERVICE†				TOTAL SERVICE*†				1951-1952
	Max. Day	Min. Day	Avg. Day	Total	Max. Day	Min. Day	Avg. Day	Total	Max. Day	Min. Day	Avg. Day	Total	
Oct.	37.13	22.93	31.16	966.04	6.20	5.14	5.76	178.37	43.33	28.37	36.92	1,144.41	Oct.
Nov.	34.60	20.74	28.99	869.74	6.30	5.34	5.80	173.88	40.75	26.21	34.79	1,043.62	Nov.
Dec.	32.37	21.61	27.90	864.81	6.62	5.14	5.73	177.64	38.58	26.75	33.63	1,042.45	Dec.
Jan.	32.63	21.63	28.42	881.07	6.07	5.13	5.78	179.02	38.63	26.76	34.20	1,060.09	Jan.
Feb.	33.17	21.08	28.82	835.91	6.09	5.41	5.77	167.34	39.09	26.56	34.59	1,003.25	Feb.
Mar.	31.88	21.38	28.36	878.97	5.91	5.33	5.62	174.37	37.68	26.75	33.98	1,053.34	Mar.
Apr.	32.67	21.34	28.21	846.11	6.39	4.94	5.77	173.20	39.05	26.60	33.98	1,019.31	Apr.
May	33.07	21.42	28.45	882.07	6.48	5.32	5.88	182.12	39.26	26.86	34.33	1,064.19	May
June	53.94	21.57	34.57	1,037.24	10.02	5.19	6.64	199.19	63.95	26.92	41.21	1,236.43	June
July	59.36	29.59	45.94	1,424.12	10.84	5.94	8.85	274.32	70.00	36.48	54.79	1,698.44	July
Aug.	51.68	22.68	34.67	1,074.63	9.13	5.06	5.99	185.78	60.81	27.88	40.66	1,260.41	Aug.
Sept.	41.80	23.72	34.09	1,022.80	7.12	5.23	6.02	180.51	48.64	29.79	40.11	1,203.31	Sept.
For Year	59.36(a)	20.74(b)	31.65	11,583.51	10.84(c)	4.94(d)	6.13	2,245.74	70.00(e)	26.21(f)	37.78	13,829.25	For Year

(a) July 22; (b) Nov. 11 (c) July 23; (d) April 13 (e) July 22; (f) Nov. 11

*Includes water supplied to City of Warwick and to State Institutions.

†Includes water supplied to East Smithfield Water Co.

TABLE 37

WATER SOLD TO STATE INSTITUTIONS, AND CITY OF WARWICK

YEAR ENDED SEPTEMBER 30, 1952

1951–1952	STATE INSTITUTIONS					CITY OF WARWICK			
	S.S. 50,767 Sockanosset Rd. Cranston 12″x4″ Venturi Meter Gallons per Month	S.S. 10,197 Pontiac Ave. Cranston 8″ Tri-Comp Meter Gallons per Month	SS24,215A East St. Cranston 8″ Tri-Prot. Meter Gallons per Month	Total Gallons per Month	Avg. Gallons per Day	S.S. 47,269 Pettaconsett Cranston 10″ Tri-Protectus Meter Gallons per Month	S.S. 47,475 Pawtuxet Bridge Warwick 6″ Tri-Comp Meter Gallons per Month	Total Gallons per Month	Avg. Gallons per Day
Oct. .	36,696,000	0	0	36,696,000	1,183,742	46,652,550	0	46,652,550	1,504,921
Nov. .	33,374,000	0	0	33,374,000	1,112,467	38,881,500	0	38,881,500	1,296,050
Dec. .	33,108,000	0	0	33,108,000	1,068,000	39,135,825	0	39,135,825	1,262,446
Jan. .	38,955,000	0	0	38,955,000	1,256,613	45,347,025	0	45,347,025	1,462,807
Feb. .	31,651,000	0	0	31,651,000	1,091,414	39,986,325	0	39,986,325	1,378,839
Mar. .	34,826,500	0	0	34,826,500	1,123,435	44,283,600	0	44,283,600	1,428,503
Apr. .	36,730,500	0	0	36,730,500	1,224,350	47,584,050	0	47,584,050	1,586,135
May. .	34,077,000	0	0	34,077,000	1,099,258	48,095,200	0	48,095,200	1,551,458
June. .	35,979,000	0	0	35,979,000	1,199,300	71,457,900	0	71,457,900	2,381,930
July. .	46,146,000	0	0	46,146,000	1,488,581	141,701,500	0	141,701,500	4,571,016
Aug.. .	35,379,500	0	0	35,379,500	1,141,274	61,242,800	0	61,242,800	1,975,574
Sept. .	39,127,500	0	0	39,127,500	1,304,250	67,184,100	0	67,184,100	2,239,470
For Year	436,050,000	0	0	436,050,000	1,191,393	691,552,375	0	691,552,375	1,889,487

TABLE 38

WATER SOLD TO EAST SMITHFIELD WATER COMPANY AND KENT COUNTY WATER AUTHORITY

YEAR ENDED SEPTEMBER 30, 1952

1951–1952	EAST SMITHFIELD WATER CO.				*KENT COUNTY WATER AUTH.		
	S.S. 51,198 Waterman St. No. Prov. 12" Tri-Crest Meter	S.S. 52,403 Dean Ave. Smithfield 8" Tri-Crest Meter	Total Gallons per Month	Avg. Gallons per Day	S.S. 58,985 Oaklawn Ave. Cranston 12" Tri-Crest Meter	Total Gallons per Month	Avg. Gallons per Day
	Gallons per Month	Gallons per Month			Gallons per Month		
Oct.	6,024,750	274,500	6,299,250	203,202	0	0	0
Nov.	6,080,250	0	6,080,250	202,675	0	0	0
Dec.	6,143,250	0	6,143,250	198,169	0	0	0
Jan.	6,653,250	567,750	7,221,000	232,935	0	0	0
Feb.	4,353,000	594,000	4,947,000	170,586	0	0	0
Mar.	5,414,250	618,000	6,032,250	194,589	0	0	0
Apr.	5,657,250	810,750	6,468,000	215,600	0	0	0
May	5,076,000	727,500	5,803,500	187,210	0	0	0
June	5,730,000	880,500	6,610,500	220,350	0	0	0
July	7,259,250	1,277,250	8,536,500	275,371	0	0	0
Aug.	5,357,250	811,500	6,168,750	198,992	2,925,000	2,925,000	79,054
Sept.	6,261,000	873,000	7,134,000	237,800	2,106,000	2,106,000	105,300
For Year	70,009,500	7,434,750	77,444,250	211,596	5,031,000	5,031,000	88,263

*Temporary Supply opened on August 3, 1952.

TABLE 39

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	2.53†
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	6.84	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	18.57	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	22.53	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	33.62	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	39.98	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

†Average for 9 months

TABLE 40

FINANCIAL STATEMENT OF THE PROVIDENCE WATER SUPPLY BOARD FOR THE YEAR ENDED SEPT. 30, 1952

REVENUE

Water Rents	†$2,053,427.76
Hydrant Rental	70,384.28
Electric Power	35,548.32
Setting Meters	6,230.00
Repairing Meters	693.51
Rents from Non-Operating Property	1,261.78
Repairs to Water Services	785.97
Repairs to Distribution Mains	1,980.66
Repairs to Hydrants	848.76
Installation of New Fire Supplies	7,197.00
Installation of New Water Services	52,196.53
Revolving Fund—Water Pipe and Other Appurtenances	122,067.58
Revolving Fund—Water Meters	2,952.60
Sale of Scrap Iron, Brass, Lead, Etc.	8,016.69
Sale of Lumber, Pulpwood, Etc.	1,215.37
Sale of Obsolete Equipment	8,507.90
Sundries	2,874.12
Total Revenue	$2,376,188.83

DISBURSEMENTS

Operating Expense:		
Salaries	$623,235.88	
Services Other Than Personal	107,133.84	
Materials and Supplies	203,402.89	
Special Items	192.17	
Capital Outlay	11,693.88	
Land and Buildings	3,725.00	
Other Structures and Improvements (Water Main Extensions)	184,883.54	
Total Operating Expense		*$1,134,267.20
Taxes		202,264.78
Interest on Bonds		630,000.00
Employees' Retirement System		36,837.00
Depreciation and Extension Fund		100,000.00
Payable to Sinking Fund		**272,819.85
Total Disbursements		$2,376,188.83

†Gross Water Rents	$2,124,904.04	
Minus Refunds (Current Year)	70,411.06	
Minus Refunds (Prior Year)	1,065.22	
Net Water Rents	$2,053,427.76	

*See Table 41 for detailed account of Operating Expense.
**Subject to change due to anticipated discounts on Outstanding Commitments.

TABLE 41

WATER SUPPLY BOARD OPERATING EXPENSES

FOR THE YEAR ENDED SEPT. 30, 1952

ADMINISTRATIVE

Salaries:			
001	Officials	$17,414.00	
	Clerical—Chief Engineer's Office	6,157.00	
	Clerical—Accounting	28,825.23	
	Engineering	40,757.09	
	Labor—General	13,773.65	
	Total		$106,926 97
Services Other Than Personal:			
102	Expert Consultant and Other Service Fees	$ 6.00	
109	Fees Not Otherwise Classified	15.00	
111	Telephone and Telegraph	1,288.15	
112	Postage, Freight and Express	235.64	
118	Travel Subsistence—Other	39.36	
121	Printing, Binding and Reproduction Services	2,149.18	
122	Advertising	164.75	
131	Light and Power	615.77	
141	Repairs—Office Machinery	157.14	
142	Repairs—Automobiles	259.27	
150	Repairs—Structures and Improvements	337.50	
163	Rental of Other Equipment	80.00	
166	Rent	9,000.00	
183	Dues and Subscriptions	26.00	
199	Miscellaneous Services	6,489.35	
	Total	$20,863.11	
	Outstanding Commitments	37.57	
	Total—Services Other Than Personal		$ 20,900.68
Materials and Supplies:			
201	Stationery and Office Supplies	$ 937.28	
202	Small Tools and Shop Supplies	32.50	
211	Motor Fuel	816.89	
212	Lubricants	119.80	
213	Tires and Tubes	126.34	
214	Repair Parts and Supplies—Trucks and Autos	50.14	
229	Repair Parts and Supplies—Other Equipment	18.82	
231	Medical, Chemical and Laboratory Supplies	137.77	
241	Fuel	762.30	
244	Housekeeping Supplies	54.90	
266	Lumber and Hardware	62.42	
268	Plumbing and Electrical Supplies	73.72	
299	Miscellaneous Materials and Supplies	86.82	
	Total	$ 3,279.70	
	Outstanding Commitments	62.55	
	Total—Materials and Supplies		$ 3,342.25
Capital Outlay:			
501	Office Furniture, Machinery and Equipment	$ 828.47	
502	Books, Maps and Charts	91.26	
511	Automobiles	1,800.00	
521	Construction and Engineering Equipment	255.60	
	Total	$ 2,975.33	
	Outstanding Commitments	415.35	
	Total—Capital Outlay		$ 3,390.68
	Total—Administrative		$ 134,560.58

SOURCE OF SUPPLY

Hydro Electric Station:

Salaries:			
001	Labor—Operation	$ 4,401.67	
	Repairs—Structures and Improvements	279.30	
	Repairs—Machinery and Equipment	519.17	
	Total		$ 5,200.14
Services Other Than Personal:			
111	Telephone and Telegraph	$ 136.05	
142	Repairs—Trucks and Autos	27.05	
146	Repairs to Plant Equipment	139.15	
199	Miscellaneous Services	27.50	
	Total		$ 329.75
Materials and Supplies:			
201	Stationery and Office Supplies	$ 46.88	
202	Small Tools and Shop Supplies	.60	
212	Lubricants	10.18	
214	Repair Parts and Supplies—Trucks and Autos	58.53	
222	Repair Parts and Supplies for Plant Equipment	331.68	
241	Fuel	181.50	
244	Housekeeping Supplies and Minor Equipment	19.85	
268	Plumbing and Electrical Supplies	146.99	
	Total	$ 796.21	

Water Purification Plant:

Salaries:			
001	Supervision	$13,330.39	
	Labor—Operation	26,845.68	
	Technical	14,013.54	
	Clerical—Laboratory	957.04	
	Repairs—Structures and Improvements	1,611.08	
	Repairs—Machinery and Equipment	2,602.19	
	Repairs—Care of Grounds	909.75	
	Repairs—Highways	12.60	
	Total		$60,282.27
Services Other Than Personal:			
102	Expert Consultant and Other Service Fees	$ 27.00	
109	Fees Not Otherwise Classified	100.00	
111	Telephone and Telegraph	829.89	
112	Postage, Freight and Express	107.78	
141	Repairs—Office Machinery	35.75	
142	Repairs—Trucks and Autos	132.45	
146	Repairs—Plant Equipment	519.01	
149	Repairs to Other Equipment	40.00	
150	Repairs—Structures and Improvements	3,950.00	
151	Maintenance and Servicing	379.97	
181	Laundry and Cleaning	47.66	
199	Miscellaneous Services	118.03	
	Total		$6,287.54
Materials and Supplies:			
201	Stationery and Office Supplies	$ 482.10	
202	Small Tools and Shop Supplies	1,079.77	
204	Wearing Apparel and Personal Supplies	560.90	
211	Motor Fuel	1,409.45	
212	Lubricants	152.98	
213	Tires and Tubes	159.08	
214	Repair Parts and Supplies—Trucks and Autos	109.49	
222	Repair Parts and Supplies—Plant Equipment	671.71	

229	Repair Parts and Supplies—Other Equipment	384.79	
231	Ferric Sulphate	29,495.64	
231	Lime	10,816.61	
231	Chlorine	2,756.25	
231	Sodium Silico Fluoride	2,912.00	
231	Miscellaneous Chemical Supplies	31.57	
231	Miscellaneous Laboratory Supplies	1,481.24	
241	Fuel	4,024.88	
244	Housekeeping Supplies	425.42	
259	Other Agricultural, Horticultural, and Landscaping Supplies	247.71	
264	Fabricated Cement Products	121.72	
266	Lumber and Hardware	300.47	
267	Paint and Painters' Supplies	998.99	
268	Plumbing and Electrical Supplies	775.36	
271	Pipe	216.09	
272	Valves and Fittings	249.52	
279	Water System Materials and Supplies Not Otherwise Classified	18.54	
299	Miscellaneous Materials and Supplies	119.20	
	Total		$60,001.48
Special Items:			
302	Liability Insurance	$ 21.13	
	Total		$ 21.13
Capital Outlay:			
502	Books, Maps and Charts	$ 8.77	
571	Agricultural and Landscaping Equipment	360.50	
	Total		$ 369.27

Scituate Reservoir:

Salaries:			
001	Labor—Operation	$ 2,895.18	
	Repairs—Structures and Improvements	300.30	
	Repairs—Care of Grounds	1,089.75	
	Repairs—Highways	480.30	
	Total		$ 4,765.53
Services Other Than Personal:			
111	Telephone and Telegraph	$ 161.65	
142	Repairs—Trucks and Autos	58.55	
	Total		$ 220.20
Materials and Supplies:			
213	Tires and Tubes	$ 83.84	
214	Repair Parts and Supplies—Trucks and Autos	27.50	
252	Seeds, Fertilizer, Trees and Shrubs	113.30	
259	Other Agricultural, Horticultural, and Landscaping Supplies	209.52	
	Total		$ 434.16
Capital Outlay:			
511	Automobiles	$ 1,481.00	
	Total		$ 1,481.00

Other Reservoirs:

Salaries:			
001	Labor—Operation	$ 2,565.33	
	Repairs—Care of Grounds	491.10	
	Total		$ 3,056.43

Services Other Than Personal:				
142	Repairs—Trucks and Autos	$ 18.51		
	Total		$	18.51
Materials and Supplies:				
214	Repair Parts and Supplies—Trucks and Autos	$ 1.62		
	Total		$	1.62

Reforestation:

Salaries:				
001	Labor—Operation	$ 2,225.50		
	Repairs—Machinery and Equipment	349.65		
	Repairs—Care of Grounds	15,145.05		
	Repairs—Highways	154.80		
	Total		$17,875.00	
Services Other Than Personal:				
102	Expert Consultant and Other Service Fees	$ 18.00		
115	Transportation of Persons—Conventions	20.07		
117	Travel Subsistence—Conventions	20.00		
142	Repairs—Trucks and Autos	110.77		
199	Miscellaneous Services	19.90		
	Total		$	188.74
Materials and Supplies:				
214	Repair Parts and Supplies—Trucks and Autos	$ 18.09		
252	Seeds, Fertilizers, Trees and Shrubs	400.00		
	Total		$	418.09

Real Estate:

Salaries:				
001	Repairs—Structures and Improvements	$ 171.00		
	Repairs—Care of Grounds	45.00		
	Total		$	216.00
Services Other Than Personal:				
199	Miscellaneous Services	$ 16.00		
	Total		$	16.00

General:

Salaries:				
001	Clerical	$ 719.76		
	Labor—Operation	13,024.61		
	Repairs—Structures and Improvements	346.93		
	Repairs—Machinery and Equipment	389.75		
	Repairs—Care of Grounds	77.70		
	Repairs—Highways	213.30		
	Repairs—Care of Grounds—Rockland Cemetery	633.90		
	Total		$15,405.95	
Services Other Than Personal:				
102	Expert Consultant and Other Service Fees	$ 39.00		
109	Fees Not Otherwise Classified	24.00		
117	Travel Subsistence—Conventions	12.25		
142	Repairs—Trucks and Autos	505.20		
	Total		$	580.45

Materials and Supplies:			
201	Stationery and Office Supplies	$ 18.74	
202	Small Tools and Shop Supplies	206.82	
212	Lubricants	14.22	
213	Tires and Tubes	126.20	
214	Repair Parts and Supplies—Trucks and Autos	289.15	
229	Repair Parts and Supplies—Other Equipment	$ 2.45	
241	Fuel	161.87	
252	Seeds, Fertilizer, Trees and Shrubs	13.47	
259	Other Agricultural, Horticultural and Landscaping Supplies	281.30	
262	Cement, Plaster and Related Products	249.15	
266	Lumber and Hardware	44.98	
267	Paint and Painters' Supplies	109.76	
299	Miscellaneous Materials and Supplies	457.03	
	Total		$ 1,975.14
	Outstanding Commitments—Services Other Than Personal		4,296.73
	Outstanding Commitments—Materials and Supplies		8,461.92
	Outstanding Commitments—Land and Buildings		1,745.00
	Outstanding Commitments—Capital Outlay		831.00
	Total—Source of Supply		$195,275.26

TRANSMISSION AND DISTRIBUTION

Pumping Station:

Salaries:			
001	Labor—Operation	$13,454.34	
	Total		$13,454.34
Services Other Than Personal:			
111	Telephone and Telegraph	$ 259.75	
131	Light and Power	13,462.78	
143	Repairs—Construction and Other Automotive Equipment	944.67	
146	Repairs—Plant Equipment	631.34	
151	Maintenance and Servicing	91.09	
199	Miscellaneous Services	15.93	
	Total		$15,405.56
Materials and Supplies:			
201	Stationery and Office Supplies	$ 66.94	
211	Motor Fuel	264.47	
212	Lubricants	.66	
214	Repair Parts and Supplies—Trucks and Autos	4.11	
222	Repair Parts and Supplies—Plant Equipment	59.00	
241	Fuel	712.37	
267	Paint and Painters' Supplies	19.99	
279	Water System Materials and Supplies Not Otherwise Classified	6.81	
	Total		$ 1,134.35

Pipe Lines:

Salaries:		
001	Supervision	$10,388.30
	Clerical	4,898.35
	Labor-Operation	96,618.40
	Repairs—Trucks and Autos	16,849.57
	Repairs—Care of Grounds	1,523.34
	Repairs—Highway Construction	29,580.05
	Repairs—Transmission Mains	2,926.10
	Repairs—Distribution Mains	8,715.44

	Repairs—Gates and Valves	5,637.11	
	Repairs—Hydrants	8,251.72	
	Repairs—Services	11,068.45	
	Repairs—Meters (Emergency)	434.50	
	Repairs—Fountains and Basins	23.64	
	Repairs—Olneyville Expressway	217.04	
	New Work—Hydrants	3,571.04	
	New Work—Services	45,509.08	
	Total		$246,212.13
Services Other Than Personal:			
102	Expert Consultant and Other Service Fees	$ 194.00	
109	Fees Not Otherwise Classified	53.00	
111	Telephone and Telegraph	2,236.75	
112	Postage, Freight and Express	298.54	
121	Printing, Binding and Reproduction Services	19.03	
131	Light and Power	2,164.81	
141	Repairs—Office Machinery	17.80	
142	Repairs—Trucks and Autos	1,999.21	
143	Repairs—Construction and Other Automotive Equipment	797.48	
146	Repairs—Plant Equipment	12.51	
151	Maintenance and Servicing	3.00	
153	Repairs—Street Openings	5,602.04	
163	Rental of Other Equipment	180.00	
166	Rent	2,000.00	
199	Miscellaneous Services	3,086.03	
	Total		$18,664.20
Materials and Supplies:			
201	Stationery and Office Supplies	$ 639.17	
202	Small Tools and Shop Supplies	2,148.57	
204	Wearing Apparel and Personal Supplies	185.37	
211	Motor Fuel	4,059.55	
213	Tires and Tubes	1,201.68	
214	Repair Parts and Supplies—Trucks and Autos	3,360.01	
229	Repair Parts and Supplies—Other Equipment	231.35	
231	Medical, Chemical and Laboratory Supplies	11.76	
241	Fuel	3,989.88	
244	Housekeeping Supplies and Minor Equipment	294.84	
261	Gravel, Sand and Stone	770.57	
262	Cement, Plaster and Related Products	117.60	
264	Fabricated Cement Products	222.00	
266	Lumber and Hardware	1,304.49	
267	Paint and Painters' Supplies	272.96	
268	Plumbing and Electrical Supplies	3,475.23	
271	Pipe—Cast Iron	3,481.69	
271	Pipe—Service	9,021.52	
271	Pipe—Other	80.19	
272	Hydrants, Valves and Fittings	58,974.06	
272	Gates and Valves	7,189.20	
273	Special Castings	372.00	
279	Water System and Materials Not Otherwise Classified	113.84	
299	Miscellaneous Materials and Supplies	582.88	
	Total		$102,100.41
Special Items:			
331	Payments of Claims and Damages	$ 171.04	
	Total		$ 171.04
Capital Outlay:			
511	Automobiles	$ 940.45	
521	Construction and Engineering Equipment	1,503.89	
561	Shop and Plant Equipment	250.00	
591	Equipment Not Otherwise Classified	441.00	
	Total		$ 3,135.34

Other Structures and Improvements:			
721	New Main Extensions	$144,872.40	
	Total		$144,872.40
Distribution Reservoirs:			
Services Other Than Personal:			
111	Telephone and Telegraph	$ 213.00	
131	Light and Power	26.15	
	Total		$ 239.15
General:			
Salaries:			
001	Labor—Operation	$ 5,926.47	
	Total		$ 5,926.47
Services Other Than Personal:			
112	Postage, Freight and Express	$ 180.56	
142	Repairs—Trucks and Autos	9.80	
146	Repairs—Plant Equipment	36.25	
150	Repairs—Structures and Improvements	17.25	
199	Miscellaneous Services	108.00	
	Total		$ 351.86
Materials and Supplies:			
202	Small Tools and Shop Supplies	$ 40.06	
266	Lumber and Hardware	6.70	
267	Paint and Painters' Supplies	9.06	
271	Pipe	49.83	
272	Valves and Fittings	8.20	
	Total		$ 113.85
Capital Outlay:			
591	Equipment Not Otherwise Classified	$ 317.00	
	Total		$ 317.00
	Outstanding Commitments—Services Other Than Personal		6,546.72
	Outstanding Commitments—Materials and Supplies		3,465.18
	Outstanding Commitments—Capital Outlay		1,259.20
	Outstanding Commitments—Land and Buildings		1,980.00
	Outstanding Commitments—New Main Extensions		40,011.14
	Total—Transmission and Distribution		$605,360.34

METERING

Salaries:			
001	Supervision	$ 7,922.60	
	Clerical	63,200.57	
	Labor—Operation	32,565.56	
	Repairing Meters	9,951.94	
	Removing and Setting Meters	11,553.01	
	Testing Meters	2,495.25	
	General Operation	16,225.72	
	Total		$143,914.65
Services Other Than Personal:			
102	Expert Consultant and Other Service Fees	$ 33.00	
109	Fees Not Otherwise Classified	18.00	
111	Telephone and Telegraph	1,203.48	
112	Postage, Freight and Express	451.29	
116	Transportation of Persons—Carfares	650.85	

121	Printing, Binding and Reproduction Services	86.50	
131	Light and Power	615.80	
141	Repairs—Office Machinery, Furniture and Furnishings	691.82	
142	Repairs—Trucks and Autos	1,062.64	
151	Maintenance and Servicing	198.00	
163	Rental of Other Equipment	80.00	
166	Rent	9,000.00	
199	Miscellaneous Services	18,981.07	
	Total	$33,072.45	
	Outstanding Commitments	15.30	
	Total—Services Other Than Personal		$33,087.75
Materials and Supplies:			
201	Stationery and Office Supplies	$ 2,549.56	
202	Small Tools and Shop Supplies	380.85	
204	Wearing Apparel and Personal Supplies	109.60	
211	Motor Fuel	1,452.94	
212	Lubricants	210.94	
213	Tires and Tubes	551.15	
214	Repair Parts and Supplies—Trucks and Autos	314.15	
222	Repair Parts and Supplies—Plant Equipment	18.33	
231	Medical, Chemical and Laboratory Supplies	126.86	
241	Fuel	1,420.92	
244	Housekeeping Supplies and Minor Equipment	342.41	
266	Lumber and Hardware	24.58	
268	Plumbing and Electrical Supplies	479.67	
272	Valves and Fittings	926.77	
274	Meter Parts	9,083.58	
279	Water System Materials and Supplies Not Otherwise Classified	105.00	
299	Miscellaneous Materials and Supplies	67.24	
	Total	$18,164.55	
	Outstanding Commitments	2,993.68	
	Total—Materials and Supplies		$ 21,158.23
Capital Outlay:			
501	Office Furniture, Machinery and Equipment	$ 910.39	
	Total—Capital Outlay		$ 910.39
	Total—Metering		$ 199,071.02
	TOTAL—OPERATING EXPENSE		$1,134,267.20

TABLE 42

STATEMENT OF REVENUE—ESTIMATED AND ACTUAL
FOR THE YEAR ENDED SEPTEMBER 30, 1952

Account	Estimated Revenue	Actual Revenue
Water Rents	$2,127,000.00	$2,053,427.76
Hydrant Rental	61,000.00	70,384.28
Electricity	10,000.00	35,548.32
Stores Account (Meters)	2,000.00	2,952.60
Repairing and Setting Meters	6,000.00	6,923.51
Fire Supplies and Miscellaneous Repairs	6,500.00	3,615.39
New Service Installations	55,000.00	59,393.53
New Main Extensions	100,000.00	122,067.58
Rentals	1,500.00	1,261.78
Other miscellaneous Receipts	6,000.00	20,614.08
Total	$2,375,000.00	$2,376,188.83

TABLE 43

SUMMARY OF ANNUAL WATER WORKS REVENUES
1930-1952

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

TABLE 44

STATEMENT OF WATER WORKS
DEPRECIATION AND EXTENSION FUND

	Investment	Cash	Due From Other Funds	Total
Balance Sept. 30, 1951	$942,500.00	$ 11,809.00	$ 75,000.00	$1,029,309.90
Increase during Year Ended Sept. 30, 1952	97,000.00	305,203.89	.....	.....
Disbursements During Year Ended Sept. 30, 1952	149,500.00	255,800.76	75,000.00	.....
Accounts Receivable Year Ended Sept. 30, 1952	.....	.....	100,000.00	.....
Balance Sept. 30, 1952	$890,000.00	$ 61,213.03	$100,000.00	$1,051,213.03

TABLE 45

STATEMENT OF WATER WORKS
DEPOSIT AND REFUND ACCOUNT

Cash Balance Sept. 30, 1951	$94,544.24	
Receipts for Year Ended Sept. 30, 1952	NIL	
Total Available		$94,544.24
Disbursements for Year Ended Sept. 30, 1952	$27,084.25	
Accounts Payable as of Sept. 30, 1952	NIL	
Total Deductions		27,084.25
Cash Balance Sept. 30, 1952		$67,459.99

TABLE 46

STATEMENT OF WATER SUPPLY BOARD BONDS OUTSTANDING AND SINKING FUND REQUIREMENTS ON A 3% BASIS AS OF SEPT. 30, 1952

Bonds Payable from Sinking Fund	Rate of Int. %	Year of Issue	Year of Maturity	Bonds Issued	Bonds Outstanding	Sinking Fund Requirements On a 3% Basis
Water Supply	4	1916	1956	$1,000,000.00	$1,000,000.00	$ 845,483.54
" "	4½	1922	1962	1,000,000.00	1,000,000.00	643,582.50
" "	4	1922	1962	2,000,000.00	2,000,000.00	1,277,700.56
" "	4	1932	1962	1,000,000.00	1,000,000.00	569,031.36
" "	4	1922	1962	2,500,000.00	2,500,000.00	1,536,755.79
" "	4¼	1924	1964	2,000,000.00	2,000,000.00	1,161,507.07
" "	4	1924	1964	1,500,000.00	1,500,000.00	834,155.75
" "	4	1925	1965	2,500,000.00	2,500,000.00	1,359,889.82
" "	4	1928	1968	1,500,000.00	1,500,000.00	700,157.24
Total Water Supply Debt and Sinking Fund Requirement					$15,000,000.00	$8,928,263.63
Sinking Fund Assets Allocated to Water Supply debt per City Controller's Report on Sinking Fund Sept. 30, 1952 (Includes $272,819.85* Water Operating Balance for Year Ended Sept. 30, 1952 plus Prior Year Adjustments of $79.49 or a Total of $272,899.34).....						9,247,611.23
Amount in Excess of Requirements on 3% Basis.....						$ 319,347.60

*Subject to change due to anticipated discounts on Outstanding Commitments, see Table No. 41.

TABLE 47

A SUMMARY OF INVENTORIES OF PERSONAL PROPERTY AT SEPTEMBER 30, 1952

ADMINISTRATIVE:		$ 23,395.25
SOURCE OF SUPPLY:		
Hydro Electric Station.....	$ 6,844.59	
Purification Works	30,232.69	
Laboratory.	10,848.09	
General.	8,712.88	
		56,638.25
TRANSMISSION AND DISTRIBUTION:		
Pipe Lines	$216,536.23	
Pumping Stations	838.10	
Distribution Reservoirs	170.12	
Garage.	12,236.52	
		229,780.97
METERING:		68,143.81
SUPPLIES:		2,110.48
Total Personal Property Inventory.....		$380,068.76

TABLE 48

STATEMENT OF REVOLVING FUND FOR WATER PIPE AND OTHER APPURTENANCES

FOR THE YEAR ENDED SEPT. 30, 1952

Cash Balance Sept. 30, 1951		$ 50,000.00
Outstanding Commitments Sept. 30, 1951		69,532.23
Receipts—Sept. 30, 1952		146,701.82
Total Available		$266,234.05
Disbursements Sept. 30, 1952	$ 94,166.47	
Outstanding Commitments Sept. 30, 1952	NIL	
Transferred to the Depreciation and Extension Fund as Provided in Council Resolution No. 159	50,000.00	
Transferred to General Revenue Sept. 30, 1952	122,067.58	
Total Disbursements		$266,234.05
Cash Balance Sept. 30, 1952 (Account Closed)		$ NIL

TABLE 49

STATEMENT OF STORES REVOLVING FUND

FOR THE YEAR ENDED SEPT. 30, 1952

Cash Balance Sept. 30, 1951		$ 10,000.00
Outstanding Commitments Sept. 30, 1951		34,108.80
Receipts—Oct. 1, 1951 to Sept. 30, 1952		58,235.10
Total Available		$102,343.90
Disbursements Sept. 30, 1952	$45,024.70	
Outstanding Commitments Sept. 30, 1952	44,366.60	
Transferred as Income to General Fund	2,952.60	
Total Disbursements		92,343.90
Cash Balance Sept. 30, 1952		$ 10,000.00

TABLE 50

STATEMENT OF EXTENSION AND CONSTRUCTION ACCOUNT

FOR THE YEAR ENDED SEPT. 30, 1952

Transferred from Depreciation and Extension Fund		$135,000.00
Disbursements Sept. 30, 1952	$87,862.37	
Outstanding Commitments Sept. 30, 1952	29,827.38	
Total Disbursements		117,689.75
Cash Balance Sept. 30, 1952		$ 17,310.25

TABLE 51

EQUIPMENT FOR INTRODUCING FLUORINE INTO THE PROVIDENCE WATER SYSTEM

Transferred from Depreciation and Extension Fund		$ 23,700.00
Disbursements Sept. 30, 1952	$15,204.25	
Outstanding Commitments Sept. 30, 1952	4,949.45	
Total Disbursements		20,153.70
Cash Balance Sept. 30, 1952		$ 3,546.30

TABLE 52

WATER WORKS PROPERTY IN THE VARIOUS CITIES AND TOWNS
(VALUATION AS OF DECEMBER 30, 1951)

Location of Property	Land Area (Acres)	VALUATIONS						1952 Tax
		Declared			*Assessed			
		Land	Bldgs. & Imp.	Total	Land	Bldgs. & Imp.	Total	
City of Providence	3.03	$ 19,840.00	$ 84,200.00	$ 104,040.00	$ 19,840.00	$ 84,200.00	$ 104,040.00	.....
City of Warwick	0.06	160.00	0	160.00	160.00	0	160.00	$ 4.40
City of Cranston	79.58	14,580.00	885,000.00	899,580.00	14,740.00	885,000.00	899,740.00	25,192.72
Town of Foster	1,936.04	30,560.00	2,600.00	33,160.00	99,000.00	0	99,000.00	1,980.00
Town of Glocester	73.30	11,020.00	0	11,020.00	11,020.00	0	11,020.00	249.05
Town of Johnston	103.13	35,310.00	268,500.00	303,810.00	35,310.00	268,500.00	303,810.00	7,139.54
Town of North Providence	8.58	8,850.00	166,150.00	175,000.00	175,000.00	0	175,000.00	4,375.00
Town of Scituate	13,182.24	577,150.00	6,212,850.00	6,790,000.00	607,000.00	6,183,000.00	6,790,000.00	166,355.00
Total Real Estate	15,385.96	$697,470.00	$ 7,619,300.00	$ 8,316,770.00	$962,070.00	$7,420,700.00	$8,382,770.00	$205,295.71
Water Distribution System	.....	.....	7,170,873.14	7,170,873.14	.....	.....	.....	.....
Total	15,385.96	$697,470.00	$14,790,173.14	$15,487,643.14	$962,070.00	$7,420,700.00	$8,382,770.00	$205,295.71

*Cranston—Total Buildings and Improvements=$1,035,000.00 ($150,000.00 exempt).
Scituate—$6,176,000.00 Buildings and Improvements; $7,000.00 Tangible Personal. Valuations as per agreement dated June 9, 1951.
North Providence—Valuations as per agreement dated April 19, 1948.
Johnston—Valuations as per agreement dated April 7, 1948.

TABLE 53

SUMMARY OF STATISTICS

PROVIDENCE WATER SUPPLY BOARD

FOR THE YEAR ENDED SEPT. 30, 1952

In form recommended by the New England Water Works Association

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

GENERAL STATISTICS

Population of Providence (1950 Federal Census) 248,674
Estimated population supplied in suburbs 123,300
Total population supplied 371,974
Date of Construction 1870-76; 1915-28; 1935; 1938-40
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 ..... 83.8% by gravity; 16.2% by pumping

STATISTICS OF CONSUMPTION OF WATER

1.	Estimated total population to date	.....
2.	Estimated population on lines of pipe	.....
3.	Estimated population supplied	371,974
4.	Total consumption for the year, gallons	13,829,250,000
5.	Passed through meters, gallons	12,452,097,500
6.	Percentage of consumption metered	90.0%
7.	Average daily consumption, gallons	37,780,000
8.	Gallons per day to each inhabitant	.....
9.	Gallons per day to each consumer	101.6
10.	Gallons per day to each tap	691
11.	Cost of supplying water, per million gallons, based on total maintenance	$82.02
12.	Cost of supplying water, per million gallons, total maintenance plus fixed charges	$152.10

FILTRATION

1.	Type of filters	Rapid Sand
2.	Number of filter units	14
3.	Capacity of filter plant	14 units @ 4.4=61.6 m.g.d.
4.	Chemicals used	Ferri-Floc, Quicklime and Chlorine
5.	Total water filtered during the year, gallons	13,930,236,500
6.	Average quantity filtered per day, gallons	38,060,700
7.	Total filtered water delivered to the distribution system during the year, gallons	13,828,788,500

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

TABLE 53—Continued

SUMMARY OF STATISTICS
PROVIDENCE WATER SUPPLY BOARD
FOR THE YEAR ENDED SEPT. 30, 1952

STATISTICS RELATING TO DISTRIBUTING SYSTEM

MAINS*

1.	Kind of Pipe	Cement Asbestos, Cast Iron, Steel and Concrete
2.	Sizes	From 6 to 66 inches
3.	Extended during year (net)	103,908.12 feet
4.	Discontinued during year	2,855.38 feet
5.	Total now in use	675.36 miles
6.	Cost of repairs per mile	.....
7.	Number of leaks per mile	0.16
8.	Length of pipes less than 6 inches in diameter	0
9.	Number of hydrants added during year	50
10.	Number of hydrants now in use	3,823
11.	Number of gates added during year	223
12.	Number of stop gates now in use	9,728
13.	Number of stop gates smaller than 6 inches	0
14.	Number of blow-offs	.....
15.	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
Extended during year	0
Discontinued during year	0
Total now in use	12.71
Hydrants added during year	0
Hydrants now in use	175
Stop gates added	0
Stop gates now in use	126
Number of blow-offs	0
Range of pressure on mains	94 to 130 pounds

SERVICES

16.	Kind of pipe	lead, copper and cast iron
17.	Size	½ in. to 16 inches
18.	Extended, feet	.....
19.	Discontinued, feet	.....
20.	Total now in use, miles	.....
21.	Number of service taps added during year	1,351
22.	Number now in use	54,711
23.	Average length of services, feet	.....
24.	Average cost of service for year	.....
25.	Number of meters added	1,187
26.	Number of meters now in use	53,625
27.	Percentage of services metered	99.06
28.	Percentage of receipts from metered water	.....
29.	Number of motors and elevators added	0
30.	Number of elevators now in use	.....

*Not including high pressure fire service.