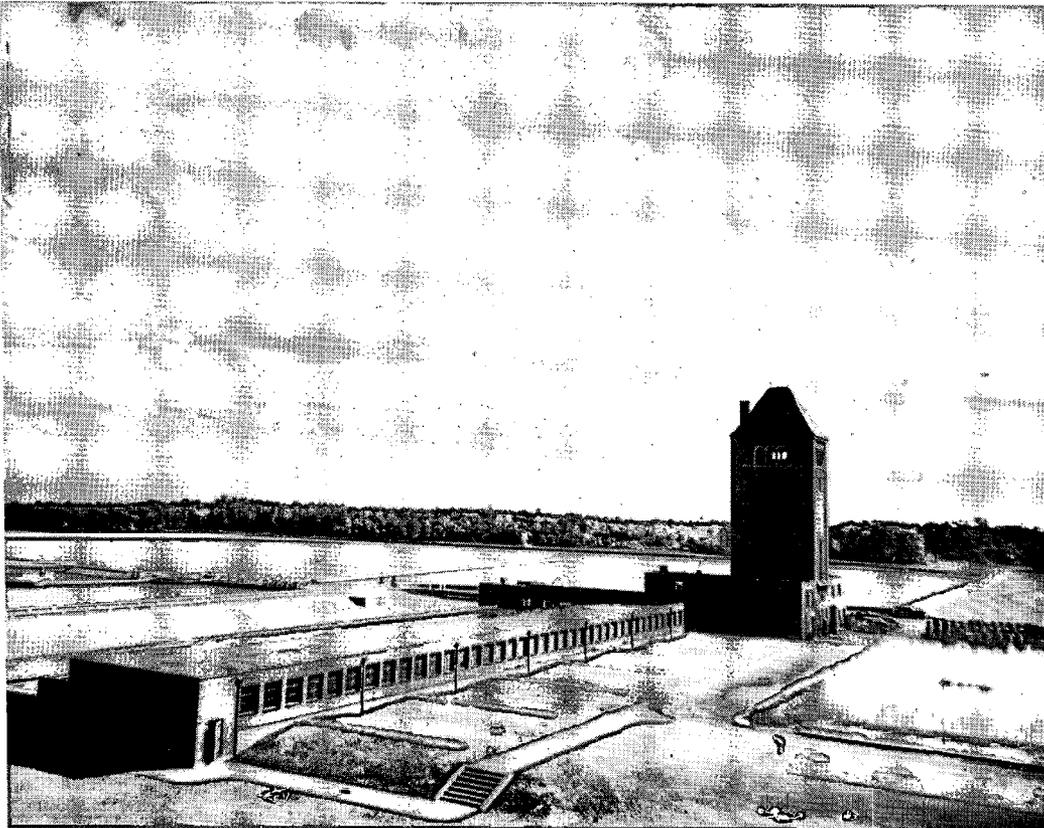


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CITY DOCUMENT



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

For the Year Ended September 30, 1957

CITY DOCUMENT

ANNUAL REPORT

OF THE

WATER SUPPLY BOARD

OF THE

CITY OF PROVIDENCE
RHODE ISLAND

For the Year Ended September 30, 1957



REPORT

ADMINISTRATIVE OFFICE
WATER SUPPLY BOARD
CITY OF PROVIDENCE
OCTOBER 1, 1957

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 sixteenth annual report of the Water Supply Board for the year ended September 30, 1957.

On January 7, 1957 John J. Tierney was reappointed a member of the Board for the ensuing term ending on the first Monday in January 1961.

At the re-organization meeting of the Board held on January 11, 1957, John A. Doherty was reelected Chairman and John J. Deary was reappointed Secretary.

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

duties which properly come before the Board. Special meetings were held throughout the year for consideration of particular problems which have arisen.

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

Respectfully submitted,

WATER SUPPLY BOARD

JOHN A. DOHERTY, *Chairman*

EARL H. ASHLEY

UGO RICCIO

JOHN J. TIERNEY

MICHAEL N. CARDARELLI, Ex-Officio

John A. Doherty
Chairman

IN CITY COUNCIL
FEB 20 1958

READ:

WHEREUPON IT IS ORDERED THAT
THE SAME BE RECEIVED.

Deveret Whelan
CLERK

REPORT OF THE CHIEF ENGINEER

Providence, R. I.
October 1, 1957

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, 1957.

During this fiscal year an extended period of drought was experienced from April 14, 1957 through the end of the year. The rainfall observed during this period amounted to 6.53 inches, and for the full fiscal year 33.43 inches. This was 14.59 inches below the 48.02 inch average yearly rainfall, establishing a new minimum for the 42 year record of observations. The previous minimum was 34.77 inches, occurring during the fiscal year ending September 30, 1930.

During the period of drought the runoff amounted to 0.42 inches; the total amount for the full year being 15.45 inches, or 9.39 inches below the average yearly runoff for the 42 year period 1915 through 1957.

Beginning on or about June 9, 1957 and continuing to the end of the year the loss in storage on the Scituate Watershed exceeded the total draft from the reservoir by approximately 2,098,000,000 gallons, or an equivalent of about 1.3 inches of runoff, representing loss by evaporation, expiration, and ground storage.

Because of the severe dry period during the summer months, the water use for sprinkling lawns and for other purposes created a heavy demand upon the system, resulting in a record consumption in both the low and high service areas. The maximum daily consumption for the year occurred on June 17, 1957, when 84,700,000 gallons were consumed; exceeding by 14,540,000 gallons the previous maximum of 70,160,000 gallons recorded on July 22, 1955. An analysis of the hourly consumption for June 17 indicated that between the hours of 11 A. M. and 12 Noon the consumption was at a rate of 131,040,000 gallons per day, exceeding the previous maximum hourly consumption rate of 118,080,000 gallons per day on July 14, 1954.

The consumption in the high service area on June 17 amounted to 15,790,000 gallons, with a peak load at the rate of 28,560,000 gallons per day taking place between the hours of 7 P. M. and 8 P. M. This exceeded the previous daily maximum of 12,220,000 gallons established July 22, 1955, and the previous maximum hourly rate of 23,780,000 gallons per day which occurred on July 14, 1954.

Investigations and studies conducted over the past several years in the east side area of Providence have indicated a steadily increasing pressure deficiency in portions of the Low Service distribution system. With the extremely high loads of the past summer, the pressure losses increased proportionally to the point where it was decided to conduct flow measurement and loss-of-head tests on the various feeder mains supplying this area. Consequently, a contract was signed with the Pitometer Associates, Inc. of New York to make the necessary flow measurement and loss-of-head tests at selected points in the feeder mains. Their report showed conclusively that the pressure deficiency was caused by the relatively poor carrying

capacities of the 16-inch and 12-inch mains in Waterman Street, which showed Williams and Hazen roughness coefficients $C=67$. These mains are unlined cast iron, installed in the year 1871, and their condition is no poorer than would be expected, considering their years of service without a protective lining. Branch feeders off the Waterman Street mains in Arlington and Wayland Avenues were found to be reasonably good, with Williams and Hazen coefficients $C=115$ and $C=108$ respectively.

Studies were initiated for an additional feeder main to increase the supply in this low pressure area. Plans and specifications are being prepared for a new 20-inch main to be laid in Lloyd Avenue from the existing 30-inch in Thayer Street to Wayland Avenue, a new 16-inch main in Wayland Avenue to Sessions Street, and a new 12-inch main connecting through Sessions Street to the existing mains in Elmgrove Avenue and Cole Avenue.

Under the same contract, the Pitometer Associates were engaged to conduct rate-of-flow and loss-of-head tests in the high service area of Atwood Avenue in Johnston between Central Avenue and Plainfield Street. This area has been under observation for some time, and with the distribution system growing toward its outer limits has shown an increasing deficiency in pressure. Here again, the existing unlined cast iron mains were found to have reduced carrying capacities due to low coefficients, and it was decided to reinforce this area with an additional main of sufficient capacity to allow for future expansion within the limits of the system. Plans and specifications were prepared for a new 16-inch main, connecting at Central Avenue to the existing 24-inch main and extending southerly in Atwood Avenue to Plainfield Street. At this location a new 12-inch main will extend westerly to Mill Street to reinforce

the nearby industrial section. Work is expected to start on this reinforcement during the early part of the next fiscal year.

The demand on the High Service portion of the distribution system seriously taxed our pumping facilities, and there were days during the summer months when it was necessary to operate all pumping units on a full 24-hour basis, leaving no reserve or standby equipment for emergency use. Consequently, studies were started immediately to determine proper design characteristics for additional pumping units to provide the necessary reserve and additional capacity to handle the steadily increasing high service load. The need for additional pumping capacity for the High Service system is urgent, and plans are being made to complete this improvement before the high summer demands of the coming year.

The construction of new extensions to the distribution system and replacement and relocation of existing mains required the installation of 50,110 feet of various size and type of pipe. The greater part of this footage was installed by private contractors under competitive bidding. Four contracts, involving 48,116 feet of main extensions, replacements and relocations were awarded during the year; two to the A. E. Bragger Construction Company for 29,233 feet, and two to the C. Brito Construction Company for 18,883 feet. Included in the C. Brito contracts was a contract for the relocation of the 16-inch high service main in Branch Avenue between Flora Street and West River Street, involving the installation of 2,489 feet of 16-inch main, consisting of 2,276 feet of pre-stressed steel cylinder Lock Joint pipe and 213 feet of cast iron pipe. This relocation became necessary because of the numerous leaks and ruptures occurring in this main at the approaches to and on the Branch Avenue Railroad Bridge, culminating in a serious rupture on November 17, 1956 at the westerly bridge approach which caused an extensive washout of the roadway and other damage at that point.

In connection with new highway construction, 152 feet of main was laid in a new location in Branch Avenue east of Woodward Road by the Campanella and Cardi Construction Company. In Hawkins Street, this company installed and removed 400 feet of temporary main and laid 540 feet of permanent main at the under-pass of the Louisquisset Pike Extension of the North-South Freeway.

Other extensions, involving the installation of 119 feet of main, were laid by the department forces.

Main extensions were installed in 189 different streets, with approximately 8,174 feet remaining to be laid at the end of the year.

The relocation of the Branch Avenue main, under the contract with the C. Brito Construction Company, required the crossing of the New York, New Haven and Hartford Railroad property from Silver Spring Street in the vicinity of Chatham Street southeasterly, and under the main line tracks of the railroad to West River Street. The main was laid in a 25 foot wide strip of land leased from the railroad company on a yearly rental basis. The main under the tracks was laid with 16-inch plain end cast iron pipe installed in a 154 foot long 48-inch diameter concrete casing jacked under the tracks without interference with the operation of the railroad.

Capital improvements totalled \$517,618.89 during the year, of which \$442,471.08 was expended for improvements to the distribution system, including regular main extensions, new services, gate valves and hydrants; the remainder being expended for miscellaneous capital items. These improvements were financed out of income without resort to bond issues.

Applications for water service totalled 1,075, or 173 less than in the previous year. Of this number, 139 required extensions

to the distribution system. A total of 1,069 new services was installed, a decrease of 155 from the previous year.

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, 1957, the gross sewer rental collection totalled \$149,524.22.

Automotive and construction equipment owned and in use by the department totalled 25 various trucks, 18 passenger cars including 2 jeeps, 9 compressors, various pumps and other miscellaneous construction equipment. The records of the department indicate that trucks were operated a total of 34,859 truck hours at a cost of 60.4 cents per hour including depreciation, compressors 3,820 hours at 51.1 cents per hour, and passenger cars were driven a total of 195,512 miles at a cost of 5.7 cents per mile.

The year's gross income of \$2,585,828.42 was \$22,219.05 less than the income for the previous year. Although the revenue from sale of water increased by \$26,547.94, the income from the sale of power generated at the Hydro-Electric Plant decreased \$41,299.51 because of the minimum operation of the plant during the period of drought.

In continuance of the program of replacement of worn and obsolete filter control valves at the Purification Works, eight (8) additional electric motor operated butterfly valves were installed on the effluent piping of filters numbered 9, 10, 11 and 12. This installation, along with the related piping changes and electrical control wiring, now brings to completion twenty (20) of the 28 units required to finish this program. Builders Providence Incorporated was awarded a contract on Septem-

ber 3 in the amount of \$13,448.00 to furnish the balance of eight units required. Installation of these additional units will be made in the early spring of the coming year, and the next phase of valve replacement will be on the 24-inch filter wash water valves which are rapidly approaching the end of their useful life.

For the past several years, the department has been considering the installation of a radio communications system to effect a more rapid and dependable means of communication between the various units of operation. In recent emergencies, where time was important in the control of broken mains to prevent property damage, the existing radio telephone system has proven wholly inadequate and unreliable. Consequently, specifications were prepared for the installation of a complete and independent radio communications system; the main control point to be located at the Administration Building on Academy Avenue, and the main transmitter at Longview Reservoir in North Providence, because of its favorable elevation. Base stations will be located at the Purification Works and Hydro-Electric Station in Scituate and at the Neutaconkanut Pumping Station in Johnston. Twenty-six (26) mobile units will be installed in various passenger cars, utility trucks, meter trucks and emergency unit; with a portable radio for seasonal use in the fire tower at Scituate, and for emergency purposes elsewhere as required. The system will provide two-way communication between all units completely independent of telephone wire connections, and will have provisions for portable generators and direct current battery power for emergency use in the event of power company failure.

Field surveys with radio test equipment were made throughout the entire area of operation to determine the required signal strength and output capacity for the main transmitter, and

approval of the Utility Radio Association of New England was obtained to operate on the 153.71 Mc band on a shared basis with the Lowell Gas Company. Licenses were secured from the Federal Communication Commission in Washington to operate the system on the approved 153.71 Mc band. Motorola Radio Communications and Electronics Inc. were the successful bidders, and a contract was awarded them in the amount of \$20,441.00 to furnish and install the necessary equipment. If delivery and installation schedules are adhered to, the radio communications system should be in operation shortly after the beginning of the new calendar year.

No progress can be reported at this time on further studies, detailed design or construction drawings for the Aqueduct Reservoir in Cranston as this work has been delayed, due to the more urgent work which has occupied the full time of the Engineering Office.

In December, 1952, Garden City Builders filed application for water service to supply their new plat, known as Garden Hills, and located between Oaklawn Avenue and New London Turnpike in the City of Cranston. After reviewing the plat layout, they were notified that our distribution system in this section was limited to serve areas not above Elevation 140, and sections of their new plat showed elevations in excess of 190. The plat developers were informed that it would require a booster station in order to supply areas above Elevation 140, and the cost of such an installation would have to be borne by the owners of the plat.

In 1957, we were notified that they were ready to proceed with the development beyond Elevation 140, and that they had reserved a lot to be used for the construction of a pumping station. The department offered to supply the engineering service for the layout of the station and to prepare the specifi-

cations. Plans were prepared and submitted to the National Board of Fire Underwriters for their approval. They indicated to us that a pneumatic system would be satisfactory as the small number of homes, approximately 200, could not justify a more expensive type of installation.

Under the circumstances, an agreement was prepared between Garden City Builders and the City of Providence, in which they agreed to build and construct the pumping station and turn it over to the City of Providence for operation after completion. The Mayor was authorized to sign this agreement under City Council Resolution No. 353, approved May 3, 1957. The station consists of two 400 g.p.m. motor driven units and one 400 g.p.m. gas engine driven unit to be used in emergencies in case of power failure.

Considerable progress was made during the year on a Master Plan for the Purification Works, that will provide an orderly basis for all future improvements at the plant in Scituate. Our original studies showed extension developing in separate structures north of our present facilities. This plan did not promote maximum economy in operation or construction and was abandoned. The final Master Plan will be developed with major changes taking place in that section of the plant known as the Filter Effluent Gallery, and will provide all the necessary room and production facilities for the plant's ultimate growth.

A comprehensive financial study of the Providence Water Works was undertaken during the year. This study, which was only partially completed at the end of the year, will cover all aspects of the department. An inventory of all real estate and improvements, water mains, gate valves, hydrants, services and other items is in the process of being made, together with the determination of their original cost for appraisal purposes.

SOURCE OF SUPPLY

SCITUATE WATERSHED—RAINFALL AND RUNOFF

The rainfall on the 92.8 square mile Scituate Watershed above Gainer Dam was measured as usual by rain gages at Rocky Hill, Hopkins Mills, North Scituate, Westcott District and Gainer Dam. For the year ending September 30, 1957, a total of 33.43 inches was recorded which is 14.59 inches below the 42-year (1915-1957) average of 48.02 inches. The rainfall for the year was 70% of the long term average.

There were four equally long periods of five days of successive rainfall, with the most productive period occurring between December 11 and 15, 1956 when a total of 2.59 inches was recorded with a maximum of 1.62 inches measured at the Rocky Hill station on December 14, and a minimum of 0.03 inches on December 13 at the Kent station. The period December 20 to 24 produced 1.07 inches total, the period December 27 to 31 produced 0.70 inches, and the January 6 to 10, 1957 period produced 0.80 inches. The longest period when no rainfall was recorded occurred from October 8 to 21, 1956.

During the months of November and December 1956, and April 1957, the monthly rainfall exceeded the 42 year averages for those respective months; the maximum monthly rainfall occurred in December 1956, when 5.46 inches was recorded exceeding the average for December by 1.47 inches. The maximum day's rainfall for the year occurred on April 5 when 1.94 inches was recorded with the station at Hopkins Mills measuring 2.06 inches. The minimum monthly rainfall, 0.72 inches, was measured in June 1957, which was 2.95 inches below the 42 year average for that month.

During the months of October and November 1956, and January, February, March, May, June, July, August, and September 1957, the monthly runoff was below the 42 year averages for the respective months, with the maximum de-

iciency of 1.91 inches occurring in March 1957, which normally is the month of greatest runoff. The maximum monthly runoff for the past year was in April 1957 when the amount collected totalled 4.54 inches, or 0.73 inches above the 42 year average for that month.

Statistical rainfall and runoff data for the year ended September 30, 1957, and the 42 years of previous watershed record may be found in Tables 1, 2, 3, and 4 of the Appendix.

SCITUATE WATERSHED STORAGE, DRAFT, AND YIELD

On October 1, 1956 the water in Scituate Reservoir was at elevation 276.87 or 7.14 feet below the spillway level; the total storage then amounting to 29,570,000,000 gallons or 79.90% of reservoir capacity. At the end of the year, October 1, 1957, the reservoir was at elevation 273.47 or 10.54 feet below the spillway level, with a storage of 26,315,000,000 gallons, or 71.10% of capacity. From October 1, 1956 the elevation dropped steadily to 273.75 on November 17, and on November 24 began to rise at a fairly steady rate, with minor fluctuations, to reach spillway elevation 284.01 on April 6, 1957, and continued upward to the maximum elevation for the year of 284.96 on April 12. At this point the total storage was 38,075,000,000 gallons, or 102.87% of capacity. From that date, the storage decreased in a steady manner to the end of the year October 1, 1957 which was the smallest amount in storage for the entire year.

The combined storage on the watershed, including Regulating, Westconnaug, Barden, Moswansicut, Ponaganset and Scituate Reservoirs on October 1, 1956 amounted to 33,157,000,000 gallons or 80.3% of combined total capacity; and at the end of the year, October 1, 1957, the combined storage was 29,538,000,000 gallons or 71.6% of capacity, which was the minimum amount in storage for the entire year. The maximum combined storage was on April 13, when

42,430,000,000 gallons, which is 102.8% of capacity, was impounded.

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

The total draft from the Scituate Watershed for the year was 28,524,040,000 gallons or an average of 78,148,000 gallons per day. The draft for water supply purposes was 17,184,040,000 gallons or an average of 47,080,000 gallons per day. The discharge into the north branch of the Pawtuxet River totalled 11,340,000,000 gallons, equal to 31,068,000 gallons per day. The discharge to the river was released at rates and during the hours which were most advantageous to the mills on the Pawtuxet River below Gainer Dam.

The yield from the Scituate Watershed for the year was 24,905,040,000 gallons or an average of 68,230,000 gallons per day, which is 9,918,000 gallons per day less than the total draft, and 41,450,000 gallons per day less than the average yearly yield for the 42 year period 1915 through 1957.

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

SCITUATE WATERSHED FORESTRY OPERATIONS—1957

Forestry operations during the year 1957 have resulted in further expansion of roadside brush control areas, plantation pruning, thinning of natural pine stands and plantations, conversion of hardwood to pine, reforestation and other related operations.

Brush Control

Expansion of roadside brush control extended the area under annual brush control from 12 to 12.5 miles and 112 to 115 acres of our primary road network. Work was completed on three of the four shoreline sectors of the Ashland Causeway during 1957.

In addition to brush control at the Source of Supply, brush was cut on Water Supply Board property from New London Avenue to Pontiac Avenue and on the 60" Neutaconkanut Conduit from Fletcher Avenue to Plainfield Street.

Chemical control of brush using hormone sprays with the Hardie 99 pump and 300 gallon spray tank was initiated on Gainer Dam access roads and experimental areas on the East Road. The results were excellent.

Fence Maintenance

Damage to fences as a result of automobile accidents necessitated fence repair in five separate instances. Damages were recovered to the extent of \$163.78.

Sixty rotted and disintegrating line posts were replaced in the East Road fence line between Brandy Brook and North Scituate.

Forestry

As dictated by stand conditions on the watershed, the forestry program has been directed toward:

- (1) Plantation thinning.
- (2) Thinning of natural white pine-pitch pine.
- (3) Conversion of hardwood site possession to pine.

Under our thinning program, we are now operating our 20-30 year old pine plantations for pulpwood. Older plantations which have not been thinned are exhibiting a decreasing rate of growth due to the existence of a greater number of trees per acre than the physical and mineral carrying capacities of the soil can support. It is important that a fast rate of growth be maintained in our plantations if we are to produce good quality lumber at a relative early age. As trees grow older their crowns and roots expand. By the 20th year individual trees are in strong competition with one another for available light, water and mineral nutrients. The cutting of selected trees reduces

crown and root competition while leaving the better trees to grow at a satisfactory rate. Trees to be removed are marked by the Forester on the basis of tree form, vigor and spacing. Volume removal is limited to 1/3 of the total volume and leaves from 400-450 trees per acre after the first thinning. By making a light cut in the first thinning it is possible to return in five years for a second thinning. The ideal thinning leaves a maximum number of trees per acre which can completely utilize the available supplies of light, moisture and mineral nutrients.

Plantation thinning procedures on the watershed are described as follows:

- (1) In alternate row red and white pine plantations, it is usually necessary to remove the white pine almost completely due to heavy weevil damage to the white pine leaders.
- (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.

Natural white pine stands exist on the watershed as a result of white pine seed trees discharging large quantities of seed into open fields. Conditions in natural white pine stands differ sharply from those of plantations. In planting an open field, we limit the number of trees to no more than 1,000 per acre. With natural seeding, the number of trees may rise to 2,000 per acre with resulting stand stagnation at an early age. It is fortunate that the majority of natural white pine stands contain an appreciable amount of pitch pine. Pitch pine is an excellent pulpwood species, but is not valuable as lumber. We are able to thin the natural white pine stands at a profit by removing the undesirable stand component, pitch pine, for pulpwood. The physical process of removing pitch pine thins the white pine and leaves the stand in excellent condition for maximum growth.

Our program of converting forest cover from hardwood to pine is continuing. This program involves the removal of hardwoods to liberate a good understory of white pine. This is a

reasonable practice wherever pine of sufficient size and stocking occurs as an understory and where the soil is capable of growing good pine. In all cases, hardwood of poor quality and vigor is removed in order to make way for a crop which can better utilize the site and is more economically valuable. Conversion by the use of a single notch girdle was accomplished on 51.8 acres during 1957.

Pruning operations were carried out on 37.6 acres involving 22,560 trees during 1957 for the following purposes:

- (1) Pruning pine stands before pulpwood operation.
- (2) Pruning lower limbs to reduce roadside fire hazard.

Thinning operations in white pine necessitate the pruning of all dead branches from ground level to a height of 6 feet above ground. This is due to the white pine's habit of retaining dead branches indefinitely, thus making it impossible to approach the bole of the tree to mark or cut it.

The reduction of roadside fire hazard calls for the removal of the lower limbs of all conifers to a nominal height of 7 feet above ground. By removing the lower limbs, we hope to limit roadside fires to surface fires on the ground rather than a fire running through the lower limbs into the crown and producing a devastating crown fire.

The fire control record for the past year was amazing. The Spring of 1957 was accompanied by the worst fire hazard weather in 70 years. Day after day of high winds, extremely dangerous conditions and class 5 ratings produced a situation in which any fire, no matter how small, presented an explosive menace to Source of Supply woodlands.

The Source of Supply had one tiny fire, the result of a lightning strike on Isthmus Road. This is one of the best records we have ever had.

The planting program was continued with the planting of 6,000 white pine seedlings during the Spring of 1957.

Regular maintenance of property at the Source of Supply was carried on throughout the year.

1957 FORESTRY OPERATIONS—AREA AND YIELD

Pine Pulpwood	.....24.8 Acres.....	442.85 Tons.....	17.85 Tons/Acre
	24.8 Acres.....	\$364.43	..... \$14.69 /Acre.

GAINER DAM—HYDRO-ELECTRIC PLANT

The Hydro-Electric Station at Gainer Dam has been in satisfactory operation throughout the year. Temporary repairs were made to the turbine wicket gate mechanism over the week end of October 26 to 28, 1956 inclusive losing only one regular day of operation. Major repairs of a permanent nature will be required, and are scheduled for the coming year. The plant was operated on 257 days for a total of 2,378 hours. Power generated from the discharge of 11,229,970,000 gallons of water through the 1875 KVA Hydro-Electric Turbo Generator to the Pawtuxet River amounted to 1,899,000 Kilowatt hours, or an average of 5,914 gallons per Kilowatt hour. Of the power generated, 1,699,200 Kilowatt hours, or 89.5% was sold to the Narragansett Electric Company, and 184,860 Kilowatt hours was used at the Purification Works.

The rate of discharge through the station, concentrated during the hours of down stream mill operations, averaged 113.34 million gallons per day. On the basis of the contract year, July 1, 1956 to June 30, 1957, the total power generated was 2,195,400 K.W.H., and the power sold to the Narragansett Electric Company was 1,608,100 K.W.H. These figures, which represent only 23% of the previous year's output, and the second lowest year of the 27 years of contract record, are evidence of the extreme drought of the past year.

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

WATER PURIFICATION WORKS

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

Water was drawn from Scituate Reservoir between elevations 213 and 220 and totalled 17,184,040,000 gallons, or an average of 47,080,000 gallons per day; the maximum for any one day being 87,510,000 gallons on June 18, 1957 and the minimum 25,430,000 gallons on November 11, 1956.

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

With the exception of a few short-period shutdowns to examine plant structures, and service 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 1,445,499 pounds, or an average of 3,960 pounds daily; with a maximum for any one day of 8,662 pounds on June 18, 1957 and a minimum of 1,625 pounds on December 29, 1956. The dosage averaged 0.59 grains per gallon,

the maximum for any one day being 0.69 grains per gallon and the minimum 0.42 grains per gallon.

Quicklime used during the year totalled 1,529,995 pounds or an average of 4,192 pounds daily; with a maximum for any one day of 7,875 pounds on June 18, 1957 and a minimum of 1,749 pounds on November 11, 1956. The lime dosage averaged 0.62 grains per gallon, the maximum for any one day being 0.76 grains per gallon and the minimum 0.48 grains per gallon.

Filters were operated a total of 71,695.50 hours during the year, at an average of 196.43 filter hours per day; the average length of filter runs being 72.21 hours which is 11.06 hours, or 13.28 per cent less than the average of 83.27 hours for the previous year. The maximum daily average of filter runs was 137.75 hours on October 5, 1956 as compared to a maximum of 154.36 hours during the previous year; and the minimum was 35.27 hours on May 10, 1957 as compared to a minimum of 49.49 hours during the previous year.

Wash water rates varied from 11 to 34 inches rise per minute, the rate of rise being adjusted inversely to the temperature of the wash water. Filters 1 to 10, exclusive of number 2, were washed at rates which varied from 20 to 30 inches rise per minute and an average sand expansion of 32%. These nine filters have sand with an effective size of 0.52 millimeters. Filter number 2 which has 0.65 millimeter sand was washed at rates varying from 29 to 34 inches per minute rise and an average sand expansion of 30%. Filters 11, 12, 13 and 14 which have 0.46 millimeter sand were washed at rates varying from 11 to 23 inches rise per minute and an average sand expansion of 37%. A total of 162 tests were made during the year to determine the sand expansion and rate of rise. The total wash water used was 131,736,000 gallons, an average of 361,000 gallons per day, or 131,080 gallons per wash. The 131,736,000 gallons of wash water used was 20.93% more than the 108,932,000 gallons for the previous year.

The total water filtered for the year amounted to 16,095,381,000 gallons, an average of 44,097,000 gallons daily; the maximum day being 83,499,000 gallons on June 17, 1957 and

the minimum 28,194,000 gallons on February 17, 1957. The average rate of filtration per filter was 5,390,000 gallons per day and the average amount of water filtered per filter per run was 16,220,000 gallons, or 9.03% less than the 17,830,000 gallons for the previous year.

The total plant effluent, or pure water delivered to the Scituate Aqueduct and the Kent County Water Authority, totalled 15,963,645,000 gallons, an average of 43,736,000 gallons per day, with a maximum of 82,818,000 gallons on June 17, 1957 and a minimum of 27,951,000 gallons on November 11, 1956.

With the exception of a few short-period shutdowns to make inspections and adjustments to the fluoridizer and the chlorinators, fluoridation and chlorination of the plant effluent were carried on 24 hours daily. With respect to fluoridation, the City of Providence Water Supply Board is acting solely as the agent of the R. I. State Health Department in carrying out their directives relative to the chemical used, the applied dosage, and the type of feeding equipment. Sodium silicofluoride has been added in amounts sufficient to produce a fluoride ion concentration throughout the distribution system of 1.2 parts per million from October 1, 1956 to May 31, 1957 and 1.0 part per million from June 1, 1957 to September 30, 1957.

Plant effluent delivered to the Scituate Aqueduct and treated with sodium silicofluoride amounted to 15,478,432,000 gallons, an average of 42,407,000 gallons per day. Sodium silicofluoride used during the year totalled 214,764 pounds, or an average of 588 pounds per day; with a maximum for any one day of 1,039 pounds on June 17, 1957 and a minimum of 385 pounds on February 17, 1957. The actual dosage of fluoride ion averaged 1.00 parts per million, the maximum and minimum dosages being 1.13 and 0.89 parts per million. Water delivered to the Kent County Water Authority is not treated with sodium silicofluoride.

Chlorination of the plant effluent delivered to the Scituate Aqueduct was carried on continuously out of abundant caution. The amount treated with chlorine totalled 15,719,128,000 gal-

lons, an average of 43,066,000 gallons per day. Water delivered to Kent County is chlorinated separately by their facilities.

Chlorine used during the year totalled 43,328 pounds, or an average of 119 pounds per day; with a maximum for any one day of 198 pounds on August 2 and 9, 1957 and a minimum of 73 pounds on March 17, 1957. The chlorine dosage averaged 0.33 parts per million, the maximum and minimum dosages being 0.43 and 0.27 parts per million. Chlorine residual of the water at a point adjacent to the main aqueduct averaged 0.034 parts per million, and of the tap water at the Water Supply Board Office 0.015 parts per million.

The following statistics show that the chemical cost of treatment for the year ended September 30, 1957 was \$4.54 per million gallons. This is 12.01% less than the figure of \$5.16 last year. The price per ton of Ferri-Floc increased from a low of \$49.38 per ton last year to \$54.45 this year, an increase of \$5.07 per ton, or 10.27%. The price per ton of quicklime increased from a low of \$19.43 last year to a high of \$21.00 this year, an increase of \$1.57 per ton, or 8.08%. The price per ton of sodium silicofluoride increased from a low of \$152.80 during the major portion of last year to a high of \$212.00 during the latter part of that year. At the start of this year we had 31,807 pounds of material on hand that had been purchased at \$212.00 per ton. Shipments received from October 23, 1956 to July 31, 1957 cost \$173.00 per ton; those received from August 1 to September 30, 1957 cost \$149.80 per ton.

Chemicals Used, etc.	Year Ended Sept. 30, 1954	Year Ended Sept. 30, 1955	Year Ended Sept. 30, 1956	Year Ended Sept. 30, 1957
Chlorine	0.32 P.P.M.	0.33 P.P.M.	0.41 P.P.M.	0.33 P.P.M.
Ferri-Floc	0.62 G.P.G.	0.68 G.P.G.	0.76 G.P.G.	0.59 G.P.G.
Quicklime	0.65 G.P.G.	0.66 G.P.G.	0.70 G.P.G.	0.62 G.P.G.
Sodium Silicofluo- ride	1.01*	1.01*	1.00*	1.00*
Length of Filter Runs	86.16 Hrs.	77.00 Hrs.	83.27 Hrs.	72.21 Hrs.
Tap Water—Color.	7 P.P.M.	7 P.P.M.	7 P.P.M.	5 P.P.M.
Tap Water—Iron..	0.01 P.P.M.	0.02 P.P.M.	0.02 P.P.M.	0.01 P.P.M.
Cost of Chemicals per M.G. of Wa- ter Treated	\$4.28	\$4.59	\$5.16	\$4.54

*Dosage expressed as P.P.M. of Fluoride.

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

The Ferri-Floc used as a coagulant was obtained under contract from Faesy & Besthoff, Inc., New York, for the period October 1, 1956 to January 10, 1957 at \$50.55 per ton; for the period January 11 to August 20, 1957 at \$51.95 per ton; for the period August 21 to August 29, 1957 at \$53.45 per ton, and for the period August 30 to September 30, 1957 at \$54.45 per ton. Specifications for Ferri-Floc received prior to August 21, 1957 read as follows: "The material furnished shall be ferric sulphate. It shall contain not less than sixty-nine per cent (69%) of water soluble ferric sulphate ($\text{Fe}_2(\text{SO}_4)_3$). The content of ferrous iron shall not exceed one and one-half per cent (1.5%) as (Fe). It shall be free of foreign material or material deemed undesirable in water purification processes. The material shall be in granular or lump form. Not more than 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 covering deliveries received on and after August 21, 1957 were modified slightly to allow a maximum of 45% to pass a 20 mesh per inch screen. The specifications contain a provision that allows us to penalize the manufacturer at the end of the contract year in event that the total amount of material received falls below an average of sixty-nine per cent (69%) of water soluble ferric sulphate ($\text{Fe}_2(\text{SO}_4)_3$).

Ferri-Floc has been delivered in bulk carload lots to the railroad siding at Washington, R. I., about five and one-half miles from the Water Purification Works. Deliveries to the plant have been made by our force with the use of a 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 of 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 111 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 0.575% which is 0.925% less than the maximum of 1.500% allowed by the specifications. The average water soluble ferric sulphate ($\text{Fe}_2(\text{SO}_4)_3$) content of the seventeen deliveries received was 71.345% or 2.345% more than the minimum of 69% demanded by specification requirements. The average amount of material passing a 20 mesh per inch screen of deliveries received prior to August 21, 1957 was 37.8% as compared to the permissible maximum of 35.0%. The average of deliveries received on and after August 21, 1957 was 42.0% as compared to the permissible maximum of 45.0%. The following table shows the date of delivery, together with the per cent of ferrous iron, per cent of water soluble ferric sulphate and per cent passing a 20 mesh per inch screen.

Date Received	Percent Ferrous Iron	Per cent water soluble Ferric Sulphate	Percent passing a 20 mesh per inch screen
October 19, 1956.....	0.58	71.10	32.0
November 2, 1956.....	0.83	71.49	45.1
November 12, 1956.....	0.56	69.99	50.0
January 11, 1957.....	0.25	71.42	44.0
January 21, 1957.....	0.19	69.92	40.0
January 28, 1957.....	0.26	71.42	38.6
April 26, 1957.....	1.05	72.18	40.0
May 8, 1957.....	0.49	70.88	40.2
May 15, 1957.....	0.27	70.49	37.4
June 17, 1957.....	0.90	72.03	33.4
June 21, 1957.....	0.69	72.24	29.3
July 5, 1957.....	1.09	69.67	27.7
July 26, 1957.....	0.34	73.14	25.7
July 26, 1957.....	0.35	73.53	46.4
August 21, 1957.....	0.50	69.99	52.1
August 30, 1957.....	0.98	71.64	32.1
September 9, 1957.....	0.45	71.74	41.7

The table shows that all 17 deliveries met specification requirements on the ferrous iron and ferric sulphate contents, but 10 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, from October 1, 1956 to January 30, 1957 at \$20.51 per ton, from January 31 to May 28, 1957 at \$20.91 per ton, and from May 29, 1957 to September 30, 1957 at \$21.00 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 the available lime shall be on an 'As Received' basis".

Analysis of the quicklime received showed an average available calcium oxide (CaO) content of 92.3% which is 2.3% greater than specification requirements. The percent of material passing a 4 mesh per inch screen was 100% on every delivery and the per cent retained on a 100 mesh per inch screen averaged 98.5%. The following table shows the date of delivery, together with the per cent of available calcium oxide and the per cent of material retained on a 100 mesh per inch screen:

Date Received	Percent Available Calcium Oxide	Percent Retained on a 100 mesh per inch screen
October 1, 1956.....	93.7	95.8
October 5, 1956.....	93.4	98.5
November 13, 1956.....	94.5	98.6
November 21, 1956.....	94.5	98.2
November 28, 1956.....	94.7	99.2
January 31, 1957.....	92.8	99.4
February 4, 1957.....	91.1	99.6
February 11, 1957.....	92.5	95.8
May 29, 1957.....	91.9	99.6
June 5, 1957.....	No Sample obtained.....	.....
June 10, 1957.....	93.5	99.4
June 28, 1957.....	90.6	98.0
July 3, 1957.....	91.6	99.8
July 17, 1957.....	83.4	98.8
August 6, 1957.....	94.2	99.1
August 12, 1957.....	92.3	98.2
August 16, 1957.....	92.7	98.2

The table shows that the July 17 delivery failed to meet specification requirements relative to the percent of available Calcium Oxide. We received a credit of \$69.70 from the manufacturer, and notified him to conform with the specifications on all future shipments.

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 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 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 105 average days' supply.

The liquid chlorine used to treat the water was obtained under contract from the Fields Point Manufacturing Company, Inc., Providence, for the period October 1, 1956 to September 30, 1957 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.

Four deliveries of sodium silicofluoride were purchased from the Henry Sundheimer Company, New York, between October 23, 1956 and April 30, 1957 at \$173.00 per ton in accordance with their proposal approved on August 27, 1956. At the beginning of the year we had 31,807 pounds of Danish material on hand that had been purchased from the above company on August 17, 1956 at \$212.00 per ton. The specifications for sodium silicofluoride purchased from this company called for an available fluoride ion content of not less than 59.4% in addition to a requirement that the material possess free-flowing properties. The following table shows the date of delivery, together with the percent of available fluoride ion. The average fluoride

ion content was 60.55%. All four shipments showed free-flowing properties.

Date Received	Percent Available Fluoride Ion
October 23, 1956.....	60.60
January 4, 1957.....	60.60
March 6, 1957.....	60.42
April 30, 1957.....	60.60

Shipments of sodium silicofluoride received on August 1 and September 20, 1957 were obtained under contract with the Berkshire Chemicals, Inc., New York, at a price of \$149.80 per ton. The specifications for the material purchased from this company are the American Water Works Association Tentative Standard Specifications for Sodium Silicofluoride, AWWA B702-54T, approved as Tentative May 27, 1954. Among other requirements these specifications call for a minimum of 98 per cent sodium silicofluoride, which corresponds to approximately 59.4 percent fluoride ion, and also state that the material shall be free-flowing. The following table shows the date of delivery, together with the percent of sodium silicofluoride. The average sodium silicofluoride content was 98.79%. The shipment received on August 1, 1957 did not possess free-flowing properties. The manufacturer was notified and a representative of the company visited our plant to examine the material. He agreed that it was not free-flowing and promised that future deliveries would conform to specification requirements.

Date Received	Percent Sodium Silicofluoride
August 1, 1957.....	98.73
September 20, 1957.....	98.86

A special pneumatic conveying system operates 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 automatically by an electric signalling device proportional to the rate of flow of water to the Scituate Aqueduct.

Number 6 fuel oil was used for heating the plant from October 1956 to May 1957 inclusive and totalled 62,803 gallons, an average of 5,233 gallons per month. Number 2 fuel oil was used during the entire year for heating water and amounted to 4,279 gallons, an average of 356 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 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, coincident with the investigation of complaints, from extensions to the distribution system, and selected locations in the distribution system.

The total number of samples obtained from all sources during the year amounted to 12,108 which, based on a forty-hour work week, means that one sample or another was obtained every 10.3 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 92,751 which, based on a forty-hour work week, means that the water was receiving one test or another every 81 seconds. Each delivery of Ferri-Floc and of quicklime was tested to determine conformance to specifications and the optimum dosages required for coagulation and pH control. Each delivery of sodium silicofluoride was also tested, not only for conformance to specifications but to assure that

the proper concentration of fluoride ion would be maintained throughout the distribution system. Filter washings were regulated by means of tests on the sand expansion and rate of rise of wash water. Samples taken after sterilization of extensions to the distribution system were tested for chlorine residual, B. Coli, 35°C and 20°C bacteria before permitting any extension to be placed in service. Consumer complaints were serviced and recommendations made to eliminate the source of trouble.

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

Population Served	Minimum Number of Samples per Month
2,500 and under	1
10,000	7
25,000	25
100,000	100
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 394,650. 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 200. The actual number of bacteriological samples obtained in the distribution system for the year amounted to a total of 3,061, or an average of 255 per month, a figure 27.5% 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.

New laboratory equipment purchased during the year consisted of an electrically operated Beckman pH Meter, a Bausch and Lomb Spectronic Colorimeter, and a battery operated Tracerlab Alpha Beta Gamma Survey Meter complete with Probe, Geiger Tube, and Food and Water Standard Radioactive Source. The pH meter was purchased in order that measurements be made in accordance with the requirements of the Tenth Edition of Standard Methods for the Examination of Water, Sewage, and Industrial Wastes which states, "the electrometric method shall be considered as standard." Measurements obtained with the new meter since January 1, 1957 have been higher than those previously determined colorimetrically due to the absence of interferences usually present in the latter method. Standard Methods also requires use of a colorimeter for the determination of various characteristics difficult to measure accurately by visual methods. The new pH meter and colorimeter have been of much value in obtaining highly accurate and reproducible results.

Participation by the Water Supply Board facilities in a state and nationwide Civilian Defense exercise in June, 1956 brought out the need for a readily available means of determining emergency permissible amounts of radioactive fission products in our water. Accordingly, the Survey Meter was procured and held in readiness so that we are now able instantly to determine, without outside aid, whether our water is safe to drink under emergency conditions resulting from nuclear explosions.

Rigid laboratory control has resulted in the continuation of economies consistent with an excellent quality of water. Constant vigilance over the chemical treatment machinery and the filter controls has 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 portion of the distribution system generally above elevation 140, and to the special high pressure fire service in the congested area of downtown Providence, have been in satisfactory operation throughout the year.

Water pumped into the high service area totalled 2,707,601,000 gallons or an average of 7,418,085 gallons per day. Neutaconkanut station pumped 997,130,000 gallons through the east Venturi and 750,190,000 gallons through the west Venturi meter for a total of 1,747,320,000 gallons or 4,787,178 gallons per day, and Bath Street Station pumped 960,281,000 gallons or 2,630,907 gallons per day.

The total power required for pumping at both stations amounted to 1,049,460 kilowatt-hours. Neutaconkanut Station required 655,500 kilowatt-hours, and Bath Street Station 393,960 kilowatt-hours. The cost of power at both stations was \$19,308.78 or \$7.13 per million gallons pumped.

Test runs of the auxiliary gasoline engine driven pump at Neutaconkanut Pumping Station were made weekly, the pump being operated a total of 50 hours and pumping 17,610,000 gallons during the year. Weekly test runs of the auxiliary gasoline engine driven pumps at the Bath Street Pumping

Station were made throughout the year. These pumps were operated a total of 34 hours and 25 minutes, pumping 4,570,000 gallons for the year.

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

DISTRIBUTION RESERVOIRS

The 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 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 50,110.03 feet including 553.36 feet which replaced existing mains. Included in this amount, 46,135.18 feet was laid with asbestos cement pipe, 1,698.69 feet with cement mortar lined cast iron pipe, and 2,276.16 feet with pre-stressed concrete steel cylinder pipe.

A total of 3,433.01 feet of pipe was removed or abandoned, resulting in a net increase to the distribution system of 46,677.02 feet. In the City of Providence, the net increase amounted to 8,893.07 feet, in the City of Cranston 14,309.97 feet, in the Town of North Providence 10,437.83 feet and in the Town of Johnston 13,036.15 feet.

At the end of the year the total length of mains in the distribution system aggregated 742.64 miles, including 12.83 miles, in the special high service fire system in the City of Providence. Asbestos cement pipe in the system totalled 653,826.16 feet, consisting of 415,533.87 feet of 6-inch, 222,955.32 feet of 8-inch, 14,834.94 feet of 12-inch and 502.03 feet of 16-inch. Pre-stressed reinforced concrete steel cylinder pipe totalled 54,628.28 feet, consisting of 2,380.54 feet of 16-inch, 32,694.08 feet of 24-inch and 19,553.66 feet of 30-inch. Reinforced concrete steel cylinder pipe totalled 36,597.00 feet consisting of 715.00 feet of 36-inch, 15,312.00 feet of 48-inch and 20,570.00 feet of 60-inch. Steel pipe totalled 10,032.00 feet consisting of 1,584.00 feet of 48-inch and 8,448.00 feet of 66-inch. The remaining footage consists of cast iron pipe in sizes ranging from 6-inch to 42-inch.

Details of 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 176 stop gates were installed during the year, 105 six-inch, 62 eight-inch, and 9 twelve-inch including 3 rotary plug valves. Four six-inch, 1 eight-inch, 1 twelve-inch, and 4 sixteen-inch gates were removed and 39 gates were replaced, 35 six-inch and 4 eight-inch, making a net of 127 stop gates added to the system during the year. At the end of the year there was a total of 10,481 stop gates in the system ranging from 6-inch to 48-inch including 3 twelve-inch and 15 sixteen-inch rotary plug valves. A total of 107 hydrant gates, 104 six-inch and 3 eight-inch, were added to the system. Hydrant gates at the end of the year totalled 3,578. Gates on unwatering hydrants remained the same, the total at the end of the year being 30, eight 6-inch and twenty-two 8-inch. Gates on blowoffs remained the same at 11, one 6-inch, four 8-inch and

six 12-inch. The total number of gates, not including service gates, all sizes, in use at the end of the year totalled 14,100, an increase of 234 over the previous year.

Details of gates in use on September 30, 1957 are shown in Table 28 of the Appendix.

The number of private pipes connected to the system at the end of the year totalled 309, a reduction of 23 over the previous year. In the City of Providence there was a total of 182, in Cranston 81, in Johnston 21, and 25 in North Providence.

A total of 1,069 new services, general and fire supplies, were installed during the year; 293 in Providence, 420 in Cranston, 189 in Johnston, 166 in North Providence, and 1 in Smithfield. Services removed, replaced or abandoned totalled 148 during the year; 97 in Providence, 33 in Cranston, 14 in Johnston, and 4 in North Providence. One hundred and twenty-four services were repaired. The number of services in the system at the end of the year was 68,476 including both general and fire supplies.

Statistics relative to service pipes installed, removed, replaced or abandoned and services repaired are shown in Table 29 of the Appendix.

Services in use at the end of the year totalled 58,512, the number of metered services totalling 58,446, and the unmetered services totalling 66. Metered services at the end of the year constituted 99.89% of the total services in use.

Statistics relative to services in use will be found in Table 30 of the Appendix.

Public fire hydrants in use at the end of the year totalled 4,325, an increase over the previous year of 79. Flush hydrants totalled 2,221 and post hydrants 2,104. Fifty flush hydrants in Providence and one flush hydrant in Johnston were replaced with post hydrants and one flush hydrant in Providence was removed. Since the adoption in March 1947 of the New York Pattern Post Hydrant, 702 flush hydrants have been replaced with the post type.

The replacement of flush type hydrants by the post type and new installations have increased the number of post hydrants in Providence from 866 to 941 and reduced the flush hydrants from 2,265 to 2,214. In Johnston the number of post hydrants have increased from 225 to 233, and flush hydrants have decreased from 8 to 7. In Cranston the number of post hydrants have increased from 647 to 686, and in North Providence from 235 to 244.

Statistics relative to public fire hydrants will be found in Tables 31 and 32 of the Appendix.

Leaks in the distribution and transmission mains totalled 71 during the year, 24 occurring at joints and 47 as a result of ruptured mains. Leaks at joints averaged 1 for every 30.94 miles of main, while total leaks averaged 1 for every 10.46 miles of main.

The number of meters repaired and tested in our Meter Repair Shop was 7,804, while those receiving attention in the field numbered 159, making a total of 7,963. The number repaired last year in shop and field was 8,837. The cost of meter repairs in the shop averaged \$2.38 per meter as against \$2.48 last year. Meters requiring servicing in the field involved an average expenditure of \$2.21 per meter during the current year as compared with \$2.29 the previous year.

The number, make and size of meters on active services at the end of the year are shown in Table 33 of the Appendix.

CONSUMPTION

Water consumption for the year ended September 30, 1957 amounted to 15,963,825,000 gallons or an average of 43,736,507 gallons per day. This average was 2,356,286 gallons per day greater than the average for the previous year. During the months of October, November, January, May, June, July and September, the consumption exceeded the same month of the previous year, ranging from 350,000 gallons per day in November to 12,190,000 gallons per day in July.

On June 17, 1957 a maximum daily record was established when the consumption totalled 84,700,000 gallons. This was the first time daily consumption exceeded the estimated safe yield of 84,020,000 gallons. It was 14,540,000 gallons, or 20.7%, greater than the previous maximum of 70,160,000 gallons which occurred on July 22, 1955. An analysis of the hourly consumption for June 17 showed that the peak demand for that day occurred between 11 A.M. and 12 Noon when the consumption rate was 131,040,000 gallons per day. A high demand was also observed from 6 P.M. to 7 P.M. and 7 P.M. to 8 P.M. when the rate during each hour was 130,800,000 gallons per day.

The maximum month's consumption was in June 1957 when 1,813,339,000 gallons were used, and the minimum month was February 1957 when 1,076,115,000 gallons were consumed.

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

FINANCIAL SUMMARY

The gross income for the year ended September 30, 1957 totalled \$2,585,828.42, a decrease of \$22,219.05 over the previous year. Revenue from the sale of water alone was \$2,262,879.80, an increase over the previous year of \$26,547.94. The remaining income of \$322,948.62 was received from other sources, including hydrant rentals, sale of power, installation of services, miscellaneous items, and surpluses in the Meter Revolving Fund and Main Extension Account. The receipts for these items show a decrease of \$48,766.99.

During the year total payments for water main extensions amounted to \$133,986.18, an increase over the previous year of \$2,631.20.

Income from service connection charges amounted to \$63,759.36, a decrease over the previous year of \$6,474.64.

At the end of the year unpaid water bills totalled \$158,430.99 as compared with \$152,268.98 at the beginning of the year, or 6.76% of the total net billing.

Miscellaneous accounts receivable amounted to \$14,042.33 at the end of the year as compared with \$16,787.24 at the beginning of the year.

Operating expenses totalled \$1,288,999.67, an increase over the previous year of \$11,079.79. This is due chiefly to minor increases in cost of labor and materials in the various divisional operations.

Fixed charges totalled \$1,061,755.73, or 41.06% of gross revenue. As in previous years, the largest single item continues to be the interest charge on the bonded indebtedness, which amounts to \$570,000.00 equivalent to 22.04 cents per dollar of the gross income.

The aggregate of all expenditures of the Board during the year totalled \$2,350,755.40, which deducted from the gross revenue of \$2,585,828.42 leaves a net balance of \$235,073.02. According to law this reverts to the Sinking Fund for the retirement of Water Bonds.

As none of the bonds mature until 1962, at which time the next \$6,500,000.00 principal will be payable, there was no reduction in the gross bonded indebtedness during the year.

The net bonded debt at the end of the present year was \$3,586,550.25, and at the end of the previous year \$4,070,553.35, showing a reduction of \$484,003.10.

Financial accounts of the department, tabulation of water works property, statements of revenues, various funds, outstanding bonds and sinking fund requirements, inventories, and other statistics may be found in Tables 38 to 50 of the Appendix.

A summary of statistics of the Providence Water Supply Board for the year ended September 30, 1957 may be found in Table 51, of the Appendix.

Respectfully submitted,

PHILIP J. HOLTON, JR.

Chief Engineer

APPENDIX

LIST OF TABLES

TABLE

1. SCITUATE WATERSHED—Monthly Rainfall in Inches for Year Ended Sept. 30, 1957.
2. SCITUATE WATERSHED—Monthly and Yearly Rainfall in Inches for 42 Years, 1916-1957.
3. SCITUATE WATERSHED—Monthly and Yearly Runoff in Inches for 42 Years, 1916-1957.
4. SCITUATE WATERSHED—Monthly and Yearly Percent of Rainfall Collected, 1916-1957.
5. SCITUATE WATERSHED—Statistics of Storage for Year Ended September 30, 1957.
6. SCITUATE WATERSHED—Statistics of Draft and Yield for Year Ended Sept. 30, 1957.
7. SCITUATE WATERSHED—Reforestation, Number and Kinds of Trees Planted in Various Years.
8. GAINER DAM—Hydro-Electric Power Generation Statistics.
9. WATER PURIFICATION WORKS—Operating Statistics.
10. WATER PURIFICATION WORKS—Chemicals Used and their Cost.
11. WATER PURIFICATION WORKS—Chemical and Physical Characteristics of Water in Process of Filtration.
12. WATER PURIFICATION WORKS—Chemical and Physical Characteristics of Water in Various Brooks and Reservoirs on Scituate Watershed.
13. WATER PURIFICATION WORKS—Chemical and Physical Characteristics of Water in the Distribution System.
14. WATER PURIFICATION WORKS—Bacteriological Examination of Water in Process of Filtration—48 Hours on Agar at 20° C.
15. WATER PURIFICATION WORKS—Bacteriological Examination of Water in Process of Filtration—24 Hours on Agar at 35° C.
16. WATER PURIFICATION WORKS—Bacteriological Examination of Water in Process of Filtration—B. Coli.
17. WATER PURIFICATION WORKS—Bacteriological Examination of Water in Various Brooks and Reservoirs on Scituate Watershed.
18. WATER PURIFICATION WORKS—Bacteriological Examination of Water in the Distribution System.
19. WATER PURIFICATION WORKS—Mineral Analysis of Water.
20. WATER PURIFICATION WORKS—Sanitary Chemical Analysis of Water.
21. WATER PURIFICATION WORKS—List of Laboratory Tests and Examinations.
22. WATER DISTRIBUTION SYSTEM—Neutaconkanut Pumping Station Operating Statistics.
23. WATER DISTRIBUTION SYSTEM—Bath Street Pumping Station Operating Statistics.

TABLE

24. WATER DISTRIBUTION SYSTEM—Neutaconkanut Distribution Reservoir Statistics.
25. WATER DISTRIBUTION SYSTEM—Longview Distribution Reservoir Statistics.
26. WATER DISTRIBUTION SYSTEM—Water Mains Laid, Removed, Replaced, etc.
27. WATER DISTRIBUTION SYSTEM—Public Water Mains in Use at end of Year.
28. WATER DISTRIBUTION SYSTEM—Gates in Use at End of Year.
29. WATER DISTRIBUTION SYSTEM—Services Installed, Removed, Repaired, etc.
30. WATER DISTRIBUTION SYSTEM—Services in Use on September 30, 1957.
31. WATER DISTRIBUTION SYSTEM—Fire Hydrants Installed, Removed, etc.
32. WATER DISTRIBUTION SYSTEM—Number of Fire Hydrants in System.
33. WATER METERS—Number, Make and Size of Meters in System.
34. WATER CONSUMPTION—Low Service, High Service and Total Consumption for Year.
35. WATER CONSUMPTION—Water Sold to State Institutions and City of Warwick.
36. WATER CONSUMPTION—Water Sold to East Smithfield Water Co. and Kent County Water Authority.
37. WATER CONSUMPTION—Average Daily Consumption for Years 1877-1957.
38. FINANCIAL STATEMENT OF PROVIDENCE WATER WORKS—Year Ended Sept. 30, 1957.
39. OPERATING EXPENSES OF PROVIDENCE WATER WORKS—Year Ended Sept. 30, 1957.
40. STATEMENT OF REVENUE—Estimated and Actual for Year Ended Sept. 30, 1957.
41. ANNUAL WATER WORKS REVENUES—Summary, 1930-1957.
42. WATER WORKS DEPRECIATION AND EXTENSION FUND.
43. WATER WORKS DEPOSIT AND REFUND ACCOUNT.
44. BONDED INDEBTEDNESS AND SINKING FUND REQUIREMENTS.
45. PERSONAL PROPERTY INVENTORIES as of Sept. 30, 1957.
46. STORES REVOLVING FUND.
47. TRANSMISSION AND DISTRIBUTION REVOLVING FUND.
48. RELOCATION OF MAIN—Branch Avenue Railroad Crossing Account.
49. MISCELLANEOUS WATER MAIN EXTENSIONS ACCOUNT.
50. WATER WORKS PROPERTY—Valuations and Taxes.
51. SUMMARY OF WATER WORKS STATISTICS—For Year Ended Sept. 30, 1957.

TABLE 1
MONTHLY RAINFALL IN INCHES ON SCITUATE WATERSHED

STATIONS ON WATERSHED	YEAR ENDED SEPTEMBER 30, 1957												Monthly Avg.	
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.		Total
Rocky Hill.....	2.84	4.82	6.13	2.92	2.25	3.56	5.17	1.81	1.44	0.48	1.66	1.97	35.05	2.92
Hopkins Mills..	2.69	4.55	6.14	3.64	2.71	3.34	5.23	1.32	0.81	1.05	1.73	1.84	35.05	2.92
North Scituate.	2.82	4.73	4.89	2.79	2.34	2.98	5.03	2.09	0.51	0.47	1.63	1.38	31.66	2.64
Westcott	2.90	5.02	4.99	2.55	2.51	3.39	4.77	1.39	0.48	1.53	1.36	1.60	32.49	2.71
Gainer Dam ...	3.57	5.46	5.13	2.58	2.51	3.40	4.86	1.15	0.38	1.27	1.53	1.11	32.95	2.75
AVERAGE...	2.96	4.92	5.46	2.90	2.46	3.33	5.01	1.55	0.72	0.96	1.58	1.58	33.43*	2.79

*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	3.73	4.89	3.42	6.05	4.31	5.99	6.05	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	1.585	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	1.74	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	44.33
1926-1927.....	5.04	5.55	3.55	2.98	3.31	1.59	2.56	3.41	3.99	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	3.23	7.56	3.47	2.27	2.06	2.93	1.35	43.35	1929	43.95
1929-1930.....	3.09	4.15	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	2.07	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	2.50	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	2.27	4.79	2.20	3.89	7.37	48.31	1934	51.14
1934-1935.....	3.25	4.44	3.55	7.24	3.09	1.93	4.76	2.27	5.12	2.70	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	1.56	3.16	4.92	5.99	4.00	0.20	40.09	1941	37.88
1941-1942.....	1.75	3.35	3.78	4.95	3.30	6.35	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	4.31	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	1.42	3.56	4.89	5.17	2.84	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	3.07	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	38.58	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	6.64	5.53	4.88	4.81	4.13	4.41	3.07	3.16	1.70	7.33	2.71	45.26	1952	45.26
1952-1953.....	1.94	3.02	4.20	7.38	4.64	9.33	7.84	3.94	1.67	4.27	2.94	2.74	57.41	1953	61.10
1953-1954.....	5.57	6.22	5.56	2.91	3.16	4.36	5.37	4.91	1.55	2.76	9.10	7.63	59.10	1954	57.44
1954-1955.....	3.13	5.65	6.91	1.00	4.96	4.17	4.16	1.78	4.53	2.43	12.75	4.53	56.00	1955	57.74
1955-1956.....	11.48	5.23	0.72	5.39	4.39	7.91	3.84	2.42	2.10	4.43	1.56	3.98	53.13	1956	49.06
1956-1957.....	2.96	4.92	5.46	2.90	2.46	3.33	5.01	1.55	0.72	0.98	1.58	1.58	35.43	1957	36.13
1 Average.....	3.44	4.72	3.99	4.08	3.70	4.41	4.18	3.55	3.67	3.72	4.60	3.96	48.02*	Avg.	48.43
2 Maximum.....	11.48	9.64	9.83	8.81	6.10	9.33	7.56	9.36	8.62	11.49	12.75	11.75	62.55	Max.	61.10
3 Minimum.....	0.21	0.48	0.72	1.00	1.82	1.42	0.89	0.94	0.10	0.96	1.33	0.20	33.43	Min.	35.58

(e) Estimated; *Total of monthly averages;

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

Year	YEARS ENDED SEPTEMBER 30												Jan.-Dec.		
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total	Year	Total
1915-1916.....	0.75(e)	1.24(e)	0.97	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	3.70	4.19	3.68	2.85	0.95	2.56	0.93	0.31	25.27	1917	24.52
1917-1918.....	1.79	1.59	1.38	4.04	2.46	6.10	4.06	3.50	2.30	3.50	3.50	4.39	33.32	1918	33.32
1918-1919.....	1.02	1.34	2.37	3.81	2.27	3.17	4.57	2.24	1.24	0.64	0.40	0.25	26.10	1919	29.75
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	2.30	3.50	3.50	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	26.10	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	3.43	2.46	4.57	1.46	0.32	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	0.42	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	3.74	2.03	1.44	0.32	1.59	0.64	21.76	1927	30.14
1927-1928.....	1.95	6.73	4.70	2.67	3.76	2.86	3.18	2.05	1.17	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	1.08	1.17	-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	3.25	1.16	4.10	3.08	1.35	4.30	0.07	0.35	3.77	10.35	1932	30.15
1932-1933.....	3.48	6.20	2.20	2.24	2.70	6.38	6.88	1.93	1.57	0.17	0.75	1.52	35.57	1933	27.13
1933-1934.....	0.95	0.82	1.82	4.78	1.18	5.38	6.08	2.88	1.47	0.08	0.14	1.40	26.08	1934	28.04
1934-1935.....	1.33	0.81	3.21	3.04	2.83	4.08	4.45	1.79	1.78	0.62	-0.14	0.26	26.56	1935	21.82
1935-1936.....	-0.13	1.00	0.71	3.04	1.93	1.51	4.45	1.50	0.44	0.03	-0.07	0.32	26.40	1936	21.64
1936-1937.....	0.46	0.43	0.92	4.59	2.77	3.34	3.75	2.52	0.75	0.02	0.60	0.57	25.00	1937	27.16
1937-1938.....	0.79	0.47	3.23	4.15	2.99	2.90	2.79	1.84	2.85	6.93	1.32	1.66	32.32	1938	31.76
1938-1939.....	1.22	1.00	3.92	2.11	4.12	5.24	4.80	1.86	2.85	0.24	0.22	0.09	23.57	1939	31.35
1939-1940.....	0.63	1.35	1.34	2.03	1.31	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	0.82	0.86	3.87	2.94	7.74	1.75	1.06	0.39	0.86	0.26	-0.17	17.41	1942	22.77
1942-1943.....	0.45	1.89	4.56	2.75	3.46	4.40	2.68	3.01	0.36	0.02	-0.16	-0.72	22.57	1943	16.97
1943-1944.....	0.60	0.93	0.42	0.73	2.68	3.24	3.53	1.08	0.43	0.15	0.31	0.72	13.57	1944	16.61
1944-1945.....	0.59	3.16	3.35	2.91	2.08	3.91	2.15	2.01	1.29	0.15	0.12	-0.13	24.49	1945	24.02
1945-1946.....	0.09	1.86	4.39	2.93	2.68	3.70	1.43	2.80	1.68	0	0.35	0.39	17.66	1946	21.08
1946-1947.....	0.33	0.90	1.39	1.59	1.35	7.01	3.71	5.29	1.19	0.53	0.15	0.31	17.66	1947	20.47
1947-1948.....	0.55	2.24	1.39	3.59	3.15	7.16	3.76	5.73	3.12	0.36	0.13	-0.41	29.05	1948	29.08
1948-1949.....	0.55	2.57	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	0.55	-0.20	26.71	1952	20.27
1952-1953.....	-0.20	0.37	1.15	4.61	4.33	7.24	6.36	3.20	0.20	0.07	-0.05	0.13	27.17	1953	32.41
1953-1954.....	0.38	1.86	4.32	2.12	2.66	3.56	4.01	3.71	0.33	-0.01	0.93	3.96	27.83	1954	32.15
1954-1955.....	1.33	3.63	5.90	2.46	3.61	4.26	2.76	1.62	0.89	0.02	4.04	1.19	31.73	1955	35.13
1955-1956.....	7.22	5.36	1.50	3.27	4.09	4.37	6.57	1.98	0.37	-0.22	0.05	0.32	35.92	1956	25.87
1956-1957.....	0.23	1.10	2.90	2.41	2.10	2.78	4.54	0.58	-0.18	-0.41	-0.38	-0.22	15.45	1957	14.20
Average.....	0.83	1.90	2.50	2.77	2.75	4.69	3.81	2.42	1.23	0.65	0.58	0.71	24.84*	Avg.	24.80
Maximum.....	7.22	6.73	6.06	4.78	4.95	11.51	6.89	5.25	4.15	6.93	4.04	4.39	35.92	Max.	35.13
Minimum.....	-0.20	0.15	0.42	0.73	1.18	2.42	1.43	0.58	-0.18	-0.41	-0.38	-0.41	12.02	Min.	11.82

(e) Estimated; *Total of monthly averages.

TABLE 4
MONTHLY AND YEARLY PERCENT OF RAINFALL COLLECTED ON SITUATE 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	27.3(c)	43.0(c)	51.7(c)	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	57.6	67.2	113.0	67.0	48.0	52.3	11.6	23.7	48.1	1917	51.9
1917-1918	26.7	31.2	42.7	51.4	108.3	147.4	74.6	71.8	20.6	9.2	19.8	20.6	47.4	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	57.5	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	12.0	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	16.7	15.7	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	2.3	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	-0.8	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	2.5	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	-18.9	54.5	1943	48.8
1943-1944	9.4	27.7	34.5	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	15.1	50.5	1945	46.0
1945-1946	2.7	20.8	60.6	102.9	78.2	280.6	60.3	50.8	49.8	0	20.5	13.2	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	1952	44.8
1952-1953	-10.3	12.2	27.4	62.5	93.8	77.6	84.4	98.8	12.0	1.6	-1.7	-4.7	51.4	1953	53.0
1953-1954	6.8	29.9	77.7	72.8	84.2	81.6	74.7	75.6	21.3	-0.4	10.2	51.9	47.1	1954	56.0
1954-1955	42.5	64.6	85.4	246.0	72.8	102.2	66.3	91.0	10.6	0.8	32.7	26.3	56.7	1955	60.8
1955-1956	62.9	122.7	208.3	60.7	93.2	57.8	171.1	81.8	45.7	8.9	-44.1	1.2	67.6	1956	52.7
1956-1957	7.8	22.4	53.1	83.1	85.4	83.5	90.6	37.4	-25.0	-42.7	-24.1	-13.9	46.2	1957	39.3
Average	24.1	40.3	62.7	67.9	74.3	106.3	91.1	68.2	33.5	17.5	12.6	17.9	51.7	Avg.	51.5
Maximum	233.3	331.2	208.3	246.0	177.4	263.4	198.0	181.1	74.3	60.3	82.0	82.0	68.1	Max.	66.4
Minimum	-12.5	12.2	22.8	20.6	25.3	57.8	58.6	32.1	-25.0	-42.7	-24.1	-205.0	30.1	Min.	32.8

(c) Estimated.

TABLE 6
SCITUATE WATERSHED
(92.8 Square Miles)

DRAFT AND YIELD FOR YEAR ENDED SEPTEMBER 30, 1957

1956- 1957	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	For Month	Avg. per Day
	Over Spillway	Through Gatehouse							Total	1956- 1957	42-Year Mean 1916-1957
Oct.	0	885.25	1,342.79	2,228.04	371.04	71.87	371.04	11.97
Nov.	0	832.01	1,229.98	2,061.99	1,770.99	68.73	1,770.99	59.03
Dec.	0	927.12	1,197.69	2,124.81	4,669.81	68.54	4,669.81	150.64
Jan.	0	904.70	1,303.99	2,208.69	3,887.69	71.25	3,887.69	125.41
Feb.	0	691.67	1,127.95	1,819.62	3,379.62	64.99	3,379.62	120.70
Mar.	0	804.92	1,220.45	2,025.37	4,477.37	65.33	4,477.37	144.43
Apr.	98.24	3,485.13	1,238.26	4,821.63	7,327.63	160.72	7,327.63	244.25
May	11.79	695.13	706.02	1,527.36	943.28	72.07	943.28	30.43
June	0	423.51	1,990.77	2,414.28	-297.72	80.48	-297.72	9.92
July	0	427.19	1,911.77	2,338.96	-664.04	75.45	-664.04	-21.42
Aug.	0	519.96	1,625.02	2,144.98	-608.02	69.19	-608.02	-19.51
Sept.	0	633.38	1,468.01	2,101.39	-332.61	70.03	-332.61	-11.75
For Yr.	110.03†	11,229.97	17,184.04	28,524.04	24,903.04	78.15	24,903.04	68.23
								109.68

†Includes Flashboard Leakage.

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

Planted During Calendar Year	Balsam Fir	Red Pine	White Pine	Douglas Fir	Austrian Pine	Scotch Pine	Jack Pine	White Spruce	Norway Spruce	Hemlock	Larch	Total Number Planted Yearly
1926	0	160,000	40,000	0	0	0	0	0	0	0	0	200,000
1927	0	60,000	150,000	0	0	0	0	0	0	0	0	210,000
1928	0	10,000	10,000	0	0	0	0	0	0	0	0	20,000
1929	0	10,000	75,000	0	0	0	0	0	0	0	0	85,000
1930	0	40,000	40,000	0	0	0	0	0	0	0	0	80,000
1931	0	40,000	50,000	0	0	0	0	9,000	0	0	0	99,000
1932	0	40,000	40,000	0	0	0	0	20,000	0	0	0	100,000
1933	0	0	0	0	0	0	0	0	0	0	0	0
1934 & 1935	0	755,000	255,000	0	36,000	136,000	4,000	505,000	204,000	3,000	0	1,898,000
1936	0	453,700	111,000	0	14,400	0	0	20,000	15,000	26,000	0	640,100
1937	0	481,100	0	0	0	0	0	215,200	0	0	0	694,300
1938	0	229,000	21,693	0	0	0	0	0	0	0	0	250,693
1939	0	8,000	761,000	0	0	0	50,000	0	0	0	0	819,000
1940	0	267,387	618,828	0	45,916	0	67,750	0	0	0	0	999,881
1941	0	51,000	285,650	0	0	0	0	34,350	0	0	0	381,000
1942	0	0	308,120	0	0	0	0	0	0	0	0	308,120
1943	0	0	0	0	0	0	0	0	0	0	0	0
1944	0	0	0	0	0	0	0	0	0	0	0	0
1945	0	0	0	0	0	0	0	0	0	0	0	0
1946	0	0	0	0	0	0	0	0	0	0	0	0
1947	0	0	0	0	0	0	0	0	0	0	0	0
1948	0	0	0	0	0	0	0	0	0	0	0	0
1949	0	0	0	0	0	0	0	0	0	0	0	0
1950	0	0	0	0	0	0	0	0	0	0	0	0
1951	0	0	1,500	12,000	0	0	0	0	0	0	0	13,500
1952	0	20,000	0	0	0	0	0	10,000	0	0	0	40,000
1953	0	10,000	0	0	0	0	0	6,000	0	0	0	16,000
1954	2,000	0	0	2,000	0	0	0	0	0	0	0	10,000
1955	0	0	5,000	0	0	0	0	0	0	0	0	10,000
1956	0	0	5,000	0	4,500	0	0	0	0	0	0	9,500
1957	0	0	6,000	0	0	0	0	0	0	0	0	6,000
TOTALS	2,000	2,635,187	2,793,791	14,000	100,816	136,000	121,750	817,550	219,000	29,000	21,000	6,890,094

TABLE 8

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

Contract Year	KWH Generated at Gainer Dam	KWH Used at Gainer Dam and Water Purification Works	Net KWH Delivered to Narrag. Elec. Co.	Payment Received
(Period June 20-30, 1930)...	87,000	6,470	75,100	\$300.40
July 1930—June 1931.....	3,023,000	152,940	2,758,340	20,000.00
July 1931—June 1932.....	4,201,500	158,070	3,980,570	19,600.00
July 1932—June 1933.....	7,024,900	155,210	6,697,656	26,790.62
July 1933—June 1934.....	5,080,900	152,420	4,837,371	19,349.48
July 1934—June 1935.....	7,102,900	174,710	6,756,101	27,024.40
July 1935—June 1936.....	5,761,200	173,530	5,394,176	21,576.70
July 1936—June 1937.....	5,626,000	174,110	5,262,807	21,051.23
July 1937—June 1938.....	6,438,300	156,710	6,069,927	24,279.71
July 1938—June 1939.....	8,915,000	159,860	8,457,980	33,831.92
July 1939—June 1940.....	4,681,100	231,850	4,329,115	17,316.46
July 1940—June 1941.....	3,291,200	185,540	2,982,991	16,000.00
July 1941—June 1942.....	2,585,300	194,250	2,322,916	15,600.00
July 1942—June 1943.....	4,655,800	170,520	4,372,359	17,489.44
July 1943—June 1944.....	2,290,100	183,250	2,096,811	14,597.25
July 1944—June 1945.....	4,146,200	187,080	3,879,622	15,518.49
July 1945—June 1946.....	4,754,100	200,200	4,460,596	17,343.70
July 1946—June 1947.....	3,494,400	251,270	3,224,049	13,600.00
July 1947—June 1948.....	5,576,900	249,940	5,313,209	21,252.84
July 1948—June 1949.....	3,790,500	264,160	3,521,404	14,085.62
July 1949—June 1950.....	1,972,200	303,460	1,548,000	9,288.00
July 1950—June 1951.....	4,965,900	322,220	4,476,900	26,861.40
July 1951—June 1952.....	6,381,400	329,080	5,836,700	35,020.20
July 1952—June 1953.....	4,993,400	351,080	4,429,900	26,579.40
July 1953—June 1954.....	3,945,700	389,050	3,389,000	20,334.00
July 1954—June 1955.....	6,776,900	422,250	6,111,000	36,666.00
July 1955—June 1956.....	9,521,700	480,300	8,747,900	52,487.40
July 1956—June 1957.....	2,195,400	466,480	1,608,100	9,648.00

*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, 1957

1956-1957	Influent Aerator Hours Operated	Plant Influent Mil. Gals.		Water Filtered Mil. Gals.		Wash Water Mil. Gals.		% of Water Filtered		Plant Effluent Mil. Gals.		Plant Effluent Flow Hours	Number of Filters In Operation			Avg. Rate of Filtration MG D
		Total	Avg. per Day	Total	Avg. per Day	Total	Avg. per Day	Total	Avg. per Day	Total	Avg. per Day		Max.	Min.	Avg.	
Oct.	745.0	1,342.79	43.31	1,272.709	41.055	9.544	0.308	0.7	1,263.165	40.747	745.0	14.0	4.0	8.6	4.74	
Nov.	717.0	1,279.98	41.00	1,168.829	38.961	8.826	0.294	0.7	1,160.003	38.667	717.5	13.0	4.0	8.3	4.71	
Dec.	744.0	1,197.69	38.63	1,148.067	37.034	9.851	0.318	0.8	1,138.216	36.717	744.0	12.0	5.0	7.9	4.68	
Jan.	744.0	1,303.99	42.06	1,276.985	39.380	13.284	0.428	1.1	1,213.701	39.152	744.0	13.0	5.0	8.5	4.66	
Feb.	672.0	1,127.95	40.28	1,083.112	38.754	8.637	0.308	0.8	1,076.475	38.445	672.0	13.0	4.0	8.2	4.73	
Mar.	744.0	1,220.45	39.37	1,155.379	37.270	8.700	0.281	0.7	1,146.679	36.990	744.0	12.0	4.5	8.0	4.67	
Apr.	719.0	1,238.26	41.27	1,163.869	38.796	9.405	0.313	0.8	1,154.464	38.482	719.0	13.0	4.5	8.4	4.64	
May	744.0	1,327.36	49.27	1,304.997	45.000	15.475	0.499	1.1	1,379.522	44.501	744.0	13.0	3.0	7.5	5.97	
June	720.0	1,590.77	66.36	1,829.377	60.979	16.378	0.546	0.9	1,812.999	60.433	720.0	14.0	3.0	9.4	6.48	
July	744.0	1,911.77	61.67	1,782.894	57.113	12.844	0.414	0.7	1,770.050	57.098	744.0	14.0	3.0	8.7	6.57	
Aug.	744.0	1,625.02	52.42	1,504.633	48.356	10.588	0.341	0.7	1,494.043	48.195	744.0	14.0	3.5	7.4	6.54	
Sept.	720.0	1,468.01	48.93	1,362.530	45.418	8.204	0.273	0.6	1,354.326	45.144	720.0	14.0	4.0	7.3	6.25	
Totals	8,757.0	17,184.04	.....	16,093.381	.....	131.736	.....	.....	15,963.645	.....	8,757.5	.....	.....	.....	.....
Average	729.7	.....	47.08	.....	44.097	.....	0.361	0.8	.....	43.736	729.8	.....	.....	8.2	5.39

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 all year.
 Sodium Silicofluoride added to water after filtration.
 Raw water drawn from lower intake at Garner Memorial Dam all year.

Table 9 (Continued)
WATER PURIFICATION WORKS
OPERATING STATISTICS FOR YEAR ENDED SEPTEMBER 30, 1957

1956-1957	Number of Filters Washed			Ferri-Floc Used			Quicklime Used			Chlorine Used			Sodium Silicofluoride Used			Fuel Oil Used for Heating—Gal.	
	Total	Avg. Per Day	Hours Run	Lbs.	Avg. Per Day	Gr. Per Gal.	Lbs.	Avg. Per Day	Gr. Per Gal.	Lbs.	Avg. Per Day	Parts per Mil.	Lbs.	Avg. Per Day	Parts per Mil.*	No. 2	No. 6
Oct.	71	2.3	95.65	104,600	3,374	0.54	116,120	3,746	0.60	4,239	137	0.41	17,750	572	1.05	379	3,806
Nov.	66	2.2	61.31	85,559	2,852	0.49	93,476	3,116	0.53	3,665	122	0.38	15,512	517	1.02	91	8,069
Dec.	75	2.4	81.61	74,351	2,398	0.43	92,659	2,988	0.54	2,963	95	0.32	16,299	526	1.04	18	11,019
Jan.	113	3.6	55.21	97,172	3,134	0.52	106,523	3,436	0.57	3,146	101	0.31	17,355	560	1.04	21	11,842
Feb.	75	2.7	72.18	107,548	3,841	0.67	101,276	3,617	0.63	2,778	99	0.31	14,966	534	1.02	24	10,588
Mar.	76	2.4	81.05	100,787	3,251	0.58	105,351	3,398	0.60	2,983	96	0.31	16,120	520	1.02	50	10,748
Apr.	77	2.6	78.92	97,886	3,263	0.55	106,513	3,350	0.60	3,000	100	0.31	16,340	545	1.03	270	6,026
May	113	3.6	53.04	135,247	4,363	0.62	142,233	4,588	0.65	3,472	112	0.30	20,309	655	1.07	453	705
June	119	3.9	58.02	195,619	6,321	0.69	179,336	5,984	0.63	4,403	147	0.30	23,027	767	0.93	673	0
July	90	2.9	68.85	181,963	5,870	0.67	179,920	5,804	0.66	4,430	143	0.31	21,302	687	0.94	777	0
Aug.	73	2.3	77.72	139,270	4,492	0.60	156,552	5,050	0.67	4,335	140	0.35	18,981	612	0.93	782	0
Sept.	57	1.9	86.66	125,317	4,184	0.60	149,856	4,995	0.71	3,914	130	0.35	16,803	560	0.93	741	0
Totals	1,005	.....	.....	1,445,499	.....	.....	1,529,995	.....	.....	43,328	.....	.....	214,764	.....	.....	4,279	62,803
Average	.....	2.7	72.21	.....	3,960	0.59	.....	4,192	0.62	.....	119	0.33	.....	588	1.00	356	5,233

Total filter hours for year, 71,695.50; average per day, 196.43.
Average quantity of water filtered per filter per run, 16.22 m. g.
*Dosage expressed as p.p.m. of Fluoride ion.

TABLE 10
WATER PURIFICATION WORKS
CHEMICALS USED DURING THE FISCAL YEAR ENDED
SEPTEMBER 30, 1957

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	1,445,499	3,960	17,184,040,000	\$37,166.04	84.12	\$2.16
Quicklime	1,529,995	4,192	17,184,040,000	15,898.28	89.03	0.92
Chlorine	43,328	119	15,719,128,000	3,791.20	2.76	0.24
Sod. Silicofluoride	214,764	588	15,478,432,000	18,931.02	13.87	1.22
Totals	3,233,586	.....	.....	\$75,786.54	.....	\$4.54

Price of Ferri-Floc—From Oct. 1, 1956 to Jan. 10, 1957—\$50.55 per ton; from Jan. 11 to Aug. 20, 1957—\$51.95 per ton; from Aug. 21 to Aug. 29, 1957—\$53.45 per ton; from Aug. 30 to Sept. 30, 1957—\$54.45 per ton.

Price of Quicklime—From Oct. 1, 1956 to Jan. 30, 1957—\$20.51 per ton; from Jan. 31 to May 28, 1957—\$20.91 per ton; from May 29 to Sept. 30, 1957—\$21.00 per ton.

Price of Chlorine—From Oct. 1, 1956 to Sept. 30, 1957—\$0.0875 per pound.

Price of Sodium Silicofluoride—From Oct. 1, 1956 to Oct. 22, 1956—\$212.00 per ton; from Oct. 23, 1956 to July 31, 1957—\$173.00 per ton; from Aug. 1 to Sept. 30, 1957—\$149.80 per ton.

TABLE 11
WATER PURIFICATION WORKS
***CHEMICAL AND PHYSICAL CHARACTERISTICS OF WATER IN**
PROCESS OF FILTRATION
YEAR ENDED SEPTEMBER 30, 1957

Monthly Averages	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
Alkalinity													
Raw.....	4.1	4.0	3.9	3.9	3.8	3.8	3.5	4.0	4.0	4.0	3.9	4.7	4.0
Effluent.....	16.3	14.3	14.3	14.4	14.1	14.5	14.5	14.3	14.2	14.5	15.5	18.0	14.9
Tap.....	14.7	12.5	12.4	12.4	11.9	12.3	12.5	12.8	13.0	13.2	13.8	15.4	13.1
Hardness													
Raw.....	9	9	9	9	9	9	9	9	9	9	10	10	9
Effluent.....	27	25	24	24	26	25	25	26	27	27	28	29	26
Tap.....	27	25	24	24	26	26	25	26	27	27	28	30	26
Hydrogen Ion Concentration													
Raw.....	6.2	6.4	6.3	6.5	6.3	6.4	6.4	6.3	6.1	5.9	5.9	5.9	6.2
Aerated Influent.....	4.3	4.3	4.3	4.4	4.2	4.3	4.4	4.3	4.3	4.3	4.3	4.4	4.3
Treated.....	9.6	9.6	9.6	10.2	10.1	10.3	10.3	10.3	10.2	10.1	10.2	10.2	10.0
Settled.....	9.5	9.5	9.5	10.2	10.1	10.1	10.1	10.2	10.1	10.0	10.0	10.1	9.9
Filtered.....	9.5	9.5	9.5	10.2	10.1	10.1	10.1	10.2	10.1	10.0	10.1	10.1	9.9
Effluent.....	9.5	9.5	9.5	10.2	10.1	10.0	10.1	10.2	10.1	10.0	10.1	10.1	9.9
Tap.....	9.3	9.3	9.2	9.9	9.8	9.8	9.9	9.9	9.9	9.7	9.8	9.8	9.7
Free CO₂													
Raw.....	3.0	1.5	1.5	1.7	2.9	1.9	1.6	2.1	3.5	4.6	6.1	7.8	3.2
Aerated Influent.....	5.2	4.5	3.9	4.9	6.8	6.0	5.6	5.8	6.7	7.0	6.7	7.2	5.8
Phenolphthalein Alkalinity													
Treated.....	10.9	9.7	10.1	9.5	9.0	9.6	9.8	9.8	9.3	9.4	10.0	11.9	9.9
Settled.....	9.9	8.8	9.2	9.3	8.6	9.0	9.3	9.1	8.8	8.6	9.3	10.4	9.2
Filtered.....	9.9	8.7	9.1	9.2	8.6	9.0	9.1	8.9	8.7	8.6	9.3	10.4	9.1
Effluent.....	9.9	8.7	9.0	9.2	8.5	9.0	9.2	9.0	8.7	8.7	9.3	10.4	9.1
Tap.....	7.4	6.4	6.2	6.5	6.0	6.3	6.5	6.6	6.7	6.5	6.9	7.9	6.6
Color													
Raw.....	11	8	8	12	14	12	12	11	11	10	10	11	11
Effluent.....	5	4	4	5	6	5	5	6	6	5	5	5	5
Tap.....	5	4	4	5	6	5	5	6	6	5	5	5	5
Turbidity													
Raw.....	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.1
Settled.....	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.2	0.1
Effluent.....	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0
Iron													
Raw.....	0.10	0.06	0.08	0.13	0.12	0.09	0.06	0.04	0.04	0.04	0.07	0.23	0.09
Settled.....	.20	.17	.23	.55	.40	.30	.27	.28	.25	.20	.21	.17	.27
Effluent.....	.01	.00	.00	.02	.01	.00	.01	.00	.00	.01	.00	.00	.00
Tap.....	.02	.02	.01	.03	.01	.01	.01	.01	.01	.01	.01	.02	.01
Manganese													
Raw.....	0.07	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.12	0.02
Settled.....	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00
Effluent.....	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Tap.....	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Fluoride													
Raw.....	0.17	0.18	0.16	0.16	0.15	0.19	0.18	0.15	0.14	0.15	0.15	0.14	0.16
Effluent.....	0.14	0.16	0.14	0.15	0.14	0.16	0.15	0.14	0.13	0.13	0.14	0.12	0.14
Tap.....	1.16	1.11	1.12	1.16	1.12	1.14	1.12	1.10	0.96	0.92	0.97	0.96	1.07
Temperature (°F.)													
Air (av. of daily max.).....	62	52	44	32	42	47	59	67	79	80	76	72	59
Air (av. of daily min.).....	39	33	28	12	23	29	40	47	59	60	55	51	40
Raw water.....	57	52	43	36	38	39	45	52	55	57	58	59	49
Water on filters.....	57	51	42	35	37	40	46	54	59	60	60	61	50
Tap.....	62	60	52	43	41	46	52	58	66	70	68	66	57

*Parts per million, except pH and Temperature.
 Note. Hydrogen Ion Concentration determined by colorimetric method during Oct., Nov. and Dec., and by electrometric method during the remainder of the year.

TABLE 12
WATER PURIFICATION WORKS
***CHEMICAL AND PHYSICAL CHARACTERISTICS OF WATER IN**
VARIOUS BROOKS AND RESERVOIRS ON SCITUATE WATERSHED
YEAR ENDED SEPTEMBER 30, 1957

Monthly Analyses	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
Color													
Coventry Brook	18	9	30	20	12	20	20	35	**	**	**	**	20
Wilbur Brook	65	110	45	38	30	30	60	100	125	**	**	**	67
Westconnaug Res.	13	100	35	14	12	15	15	15	20	10	10	13	23
Harden Reservoir	30	60	32	32	17	30	20	25	**	12	**	**	29
Cork Brook	18	75	25	15	10	15	20	15	10	**	**	**	22
Rush Brook	33	60	25	28	15	25	50	45	35	**	**	**	35
Huntinghouse Brook	22	70	25	20	12	15	22	25	25	**	**	**	26
Harrisdale Brook	19	25	22	20	12	15	30	30	18	14	**	18	20
Blanchard Brook	115	85	75	80	45	80	200	250	**	**	**	**	116
Moswansicut Pond	7	18	13	10	15	15	10	18	13	10	12	**	13
Regulating Reservoir	36	23	30	25	20	15	45	48	50	20	10	30	29
Quonapaug Brook	65	90	75	40	50	50	150	175	**	**	**	**	87
Hemlock Brook	45	60	35	25	28	30	50	60	15	10	**	12	34
Betty Pond Stream	25	20	20	20	7	10	10	20	30	14	**	**	18
Spruce Brook	28	50	35	22	22	20	45	50	70	**	**	**	38
Brandy Brook	50	75	50	35	25	22	75	75	10	12	**	**	40
Moswansicut—South	38	40	23	10	13	10	60	76	110	350	**	**	73
Windsor Brook	15	35	20	15	15	12	35	38	24	**	**	**	23
Paine Pond	48	15	30	35	27	12	20	15	10	36	**	**	25
Unnamed Brook—A	.....	.....	.....	.....	.....	.....	125	100	**	**	**	**	112
Unnamed Brook—B	.....	.....	.....	.....	.....	.....	.....	20	**	**	10	**	15
Turbidity													
Coventry Brook	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.4	**	**	**	**	0.2
Wilbur Brook	0.2	0.2	0.1	0.3	0.2	0.1	0.3	0.5	0.2	**	**	**	0.2
Westconnaug Res.	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.3	0.2
Harden Reservoir	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	**	0.2	**	**	0.2
Cork Brook	0.3	0.3	0.2	0.1	0.3	0.1	0.1	0.2	0.0	**	**	**	0.2
Rush Brook	0.3	0.2	0.2	0.4	0.2	0.1	0.1	0.1	0.0	**	**	**	0.2
Huntinghouse Brook	0.4	0.1	0.2	0.2	0.2	0.1	0.2	0.4	0.1	**	**	**	0.2
Harrisdale Brook	0.4	0.1	0.3	0.1	0.0	0.1	0.2	0.2	0.1	0.0	**	0.4	0.2
Blanchard Brook	0.2	0.1	0.3	0.1	0.3	0.1	0.1	0.2	**	**	**	**	0.2
Moswansicut Pond	0.3	0.2	0.3	0.4	0.2	0.2	0.2	0.1	0.1	0.0	0.4	**	0.2
Regulating Reservoir	0.2	0.2	0.2	0.1	0.1	0.4	0.1	0.1	0.2	0.1	0.4	0.3	0.2
Quonapaug Brook	0.3	0.1	0.2	0.1	0.1	0.2	0.0	0.1	**	**	**	**	0.1
Hemlock Brook	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	**	0.2	0.1
Betty Pond Stream	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.2	**	**	0.2
Spruce Brook	0.3	0.4	0.1	0.1	0.2	0.1	0.1	0.2	0.2	**	**	**	0.2
Brandy Brook	0.3	0.4	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.2	**	0.4	0.2
Moswansicut—South	1.3	0.3	0.1	0.2	0.4	0.2	0.4	1.0	0.3	0.8	**	**	0.5
Windsor Brook	0.2	0.3	0.2	0.2	0.1	0.1	0.2	0.4	0.1	**	**	**	0.2
Paine Pond	3.0	0.4	0.1	0.1	0.4	0.1	0.0	0.3	0.2	0.2	**	**	0.5
Unnamed Brook—A	.....	.....	.....	.....	.....	.....	0.1	0.2	**	**	**	**	0.1
Unnamed Brook—B	.....	.....	.....	.....	.....	.....	.....	0.2	**	**	0.5	**	0.3
Iron													
Coventry Brook	0.03	0.10	0.01	0.03	0.01	0.05	0.04	0.07	**	**	**	**	0.04
Wilbur Brook	.30	.16	.10	.05	.01	.02	.38	.50	.80	**	**	**	.26
Westconnaug Res.	.20	.18	.12	.03	.01	.05	.20	.20	.30	.16	.12	.20	.15
Harden Reservoir	.40	.45	.15	.10	.01	.05	.05	.12	**	.06	**	**	.15
Cork Brook	.02	.05	.00	.04	.01	.05	.02	.01	.15	**	**	**	.04
Rush Brook	.38	.10	.01	.08	.01	.02	.10	.20	1.10	**	**	**	.22
Huntinghouse Brook	.30	.05	.06	.08	.02	.01	.20	.30	.40	**	**	**	.16

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

Table 12 (Continued)
WATER PURIFICATION WORKS
***CHEMICAL AND PHYSICAL CHARACTERISTICS OF WATER IN**
VARIOUS BROOKS AND RESERVOIRS ON SCITUATE WATERSHED
YEAR ENDED SEPTEMBER 30, 1957

Monthly Analyses	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
Iron													
Harrisdale Brook ...	.20	.15	.05	.08	.02	.05	.22	.30	.20	.25	**	.24	.16
Blanchard Brook ...	.05	.20	.18	.05	.12	.20	.00	.75	**	**	**	**	.19
Moswansicut Pond ...	.40	.18	.03	.20	.00	.02	.38	.05	.05	.02	.20	**	.14
Regulating Reservoir ...	.40	.15	.03	.05	.03	.01	.10	.25	.90	.44	.18	.45	.25
Quonapaug Brook ...	.05	.20	.18	.15	.08	.08	.40	.80	**	**	**	**	.24
Hemlock Brook ...	.30	.12	.15	.10	.02	.05	.18	.20	.10	.15	**	.18	.14
Betty Pond Stream ...	.20	.10	.01	.20	.02	.03	.15	.20	.05	.20	**	**	.12
Spruce Brook ...	.05	.10	.04	.01	.02	.03	.02	.03	.10	**	**	**	.04
Brandy Brook ...	.20	.15	.25	.15	.04	.10	.30	.28	.00	.15	**	.15	.16
Moswansicut—South ...	.96	.20	.35	.20	.15	.02	1.10	.75	1.75	1.00	**	**	.65
Windsor Brook ...	.03	.02	.01	.01	.00	.01	.10	.02	.01	**	**	**	.02
Paine Pond ...	.10	.05	.05	.08	.10	.05	.05	.01	.01	.30	**	**	.08
Unnamed Brook—A ...	.....	.....	.....	.....	.....	.....	.10	.20	**	**	**	**	.15
Unnamed Brook—B ...	.....	.....	.....	.....	.....	.....	.....	.00	**	**	.22	**	.11
Manganese													
Coventry Brook ...	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**	**	**	**	0.00
Wilbur Brook ...	.10	.04	.00	.00	.00	.00	.00	.00	.00	**	**	**	.01
Westconnaug Res. ....	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Barden Reservoir ...	.03	.01	.01	.01	.00	.00	.00	.00	.00	**	**	**	.01
Cork Brook ...	.01	.00	.00	.00	.00	.00	.00	.00	.00	**	**	**	.00
Rush Brook ...	.01	.00	.01	.00	.00	.00	.00	.00	.00	**	**	**	.00
Huntinghouse Brook ...	.01	.00	.01	.00	.00	.00	.00	.00	.00	**	**	**	.00
Harrisdale Brook ...	.03	.00	.00	.00	.00	.00	.00	.00	.00	**	**	.00	.00
Blanchard Brook ...	.00	.01	.00	.00	.00	.00	.00	.00	.00	**	**	**	.00
Moswansicut Pond ...	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	**	.00
Regulating Reservoir ...	.03	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Quonapaug Brook ...	.06	.00	.00	.00	.00	.00	.01	.00	**	**	**	**	.01
Hemlock Brook ...	.00	.02	.00	.00	.00	.00	.00	.00	.00	.00	**	.00	.00
Betty Pond Stream ...	.01	.00	.01	.01	.00	.00	.01	.00	.00	.00	**	**	.00
Spruce Brook ...	.00	.01	.00	.00	.00	.00	.00	.00	.00	**	**	**	.00
Brandy Brook ...	.00	.01	.00	.00	.00	.00	.02	.00	.00	**	**	**	.00
Moswansicut—South ...	.01	.00	.00	.00	.00	.01	.00	.00	.00	**	**	**	.00
Windsor Brook ...	.00	.00	.00	.00	.00	.00	.00	.00	.00	**	**	**	.00
Paine Pond ...	.07	.00	.00	.00	.00	.01	.00	.02	.00	.00	**	**	.01
Unnamed Brook—A ...	.....	.....	.....	.....	.....	.....	.00	.00	**	**	**	**	.00
Unnamed Brook—B ...	.....	.....	.....	.....	.....	.....	.....	.00	**	**	.00	**	.00
Hydrogen Ion Concentration													
Coventry Brook ...	6.3	6.0	6.0	6.3	6.3	6.2	6.3	6.4	**	**	**	**	6.2
Wilbur Brook ...	6.0	5.5	6.0	5.8	6.1	6.2	5.9	6.1	6.7	**	**	**	6.0
Westconnaug Res. ...	6.5	6.0	6.3	6.2	6.5	6.4	6.7	6.4	6.4	6.6	6.5	6.3	6.4
Barden Reservoir ...	6.5	6.0	6.0	5.8	6.1	5.9	6.2	6.5	**	6.4	**	**	6.1
Cork Brook ...	6.2	5.6	6.0	5.9	6.3	6.1	6.3	6.5	6.5	**	**	**	6.1
Rush Brook ...	6.1	5.7	6.0	5.9	6.4	6.2	6.5	6.5	6.2	**	**	**	6.2
Huntinghouse Brook ...	6.7	6.0	6.1	6.2	6.7	6.7	6.8	6.9	6.8	**	**	**	6.5
Harrisdale Brook ...	6.7	6.3	6.1	6.3	5.7	6.6	6.9	7.0	7.2	7.0	**	7.0	6.6
Blanchard Brook ...	5.7	5.4	5.5	5.2	6.7	5.5	5.8	5.7	**	**	**	**	5.7
Moswansicut Pond ...	6.5	5.7	6.5	6.2	6.7	6.6	6.5	6.6	6.6	6.8	6.8	**	6.5
Regulating Reservoir ...	6.1	6.4	6.0	6.0	6.6	6.5	6.5	6.5	6.2	6.5	6.4	6.3	6.3
Quonapaug Brook ...	5.8	5.4	6.0	5.4	5.9	6.0	5.9	6.2	**	**	**	**	5.8
Hemlock Brook ...	6.3	5.6	6.0	5.6	6.1	5.9	6.2	6.4	6.5	6.4	**	6.4	6.1
Betty Pond Stream ...	6.3	5.8	6.0	5.5	5.7	6.1	6.1	6.0	5.8	5.9	**	**	5.9

*Parts per million, except Hydrogen Ion Concentration.

**No sample obtained—Brook or Stream was dry.

Note: Unnamed Brook A is just North of Scituate Town Dump. Unnamed Brook B is Southwest of the Foster Nike Site.

Hydrogen Ion Concentration determined by colorimetric method during Oct., Nov. and Dec., and by electrometric method during the remainder of the year.

Table 12 (Continued)
WATER PURIFICATION WORKS
***CHEMICAL AND PHYSICAL CHARACTERISTICS OF WATER IN**
VARIOUS BROOKS AND RESERVOIRS ON SCITUATE WATERSHED
YEAR ENDED SEPTEMBER 30, 1957

Monthly Analyses	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
Hydrogen Ion Concentration													
Spruce Brook	6.2	5.6	6.0	5.4	5.9	6.3	6.0	6.0	6.3	**	**	**	6.0
Brandy Brook	6.7	5.8	6.3	6.3	6.7	6.8	6.0	6.7	6.5	6.5	**	6.6	6.4
Moswansicut—South.	6.1	5.8	6.1	6.2	6.6	6.9	6.7	6.3	6.5	6.7	**	**	6.4
Windsor Brook	6.4	5.6	6.0	5.9	6.2	6.9	6.7	6.7	6.6	**	**	**	6.3
Paine Pond	5.7	5.6	6.0	5.3	5.8	6.3	5.8	5.3	4.8	5.2	**	**	5.6
Unnamed Brook—A.	.....	.....	.....	.....	.....	.....	5.9	6.2	**	**	**	**	6.0
Unnamed Brook—B.	.....	.....	.....	.....	.....	.....	.....	5.5	**	**	6.7	**	6.1
Free CO₂													
Coventry Brook	4.5	7.0	4.0	3.0	3.0	3.0	2.0	2.5	**	**	**	**	3.6
Wilbur Brook	8.0	7.5	5.5	6.0	3.5	4.5	6.0	7.0	2.5	**	**	**	5.6
Westconnaug Res.	3.0	4.5	2.5	4.0	3.5	2.5	2.5	3.0	3.0	3.5	3.0	3.0	3.2
Barden Reservoir	2.5	2.5	2.5	3.5	3.0	3.0	2.5	3.0	**	4.0	**	**	2.9
Cork Brook	3.5	5.5	4.5	3.5	2.5	3.0	2.5	3.0	1.5	**	**	**	3.3
Rush Brook	8.0	5.0	4.0	6.0	2.0	2.5	2.0	3.5	2.0	**	**	**	3.9
Huntinghouse Brook	4.0	6.0	4.0	5.0	3.0	2.5	2.0	3.0	2.0	**	**	**	3.5
Harrisdale Brook	4.0	4.0	4.0	3.5	3.0	3.0	2.5	2.0	1.5	6.0	**	1.5	3.2
Blanchard Brook	10.0	8.0	8.0	9.0	5.0	4.5	6.0	10.0	**	**	**	**	7.6
Moswansicut Pond	3.0	3.0	1.5	3.0	2.5	2.0	2.0	2.5	2.0	12.0	2.0	**	3.2
Regulating Reservoir	8.0	3.0	4.0	5.0	2.0	2.5	3.0	5.0	2.0	4.0	4.0	6.0	4.0
Quonapaug Brook	15.0	12.0	8.0	11.0	5.0	5.0	6.5	8.0	**	**	**	**	8.8
Hemlock Brook	4.0	6.0	3.5	5.0	2.0	3.5	3.0	5.0	2.0	3.5	**	2.5	3.6
Betty Pond Stream	4.0	4.0	3.5	11.0	6.0	3.0	3.5	3.0	6.0	2.5	**	**	4.6
Spruce Brook	4.0	7.5	5.0	5.0	3.0	3.5	3.0	3.0	2.0	**	**	**	4.0
Brandy Brook	3.0	5.0	3.0	4.0	2.5	3.0	3.5	2.5	2.5	4.0	**	2.0	3.2
Moswansicut—South.	15.0	5.0	6.5	7.0	2.0	3.0	3.0	2.5	3.0	3.5	**	**	5.0
Windsor Brook	2.5	3.5	3.0	4.0	2.5	3.0	3.0	3.0	2.0	**	**	**	2.9
Paine Pond	16.0	4.0	5.0	7.0	4.0	3.0	4.0	2.5	2.5	2.0	**	**	5.0
Unnamed Brook—A.	.....	.....	.....	.....	.....	.....	3.5	3.0	**	**	**	**	3.2
Unnamed Brook—B.	.....	.....	.....	.....	.....	.....	.....	3.5	**	**	5.5	**	4.5
Alkalinity													
Coventry Brook	5.5	3.5	3.5	4.0	4.0	3.5	4.0	5.0	**	**	**	**	4.1
Wilbur Brook	5.0	4.0	3.5	3.0	4.5	3.5	5.0	6.0	8.0	**	**	**	4.7
Westconnaug Res.	7.5	4.0	6.0	3.5	5.0	4.0	6.0	5.0	4.5	5.0	5.0	5.5	5.1
Barden Reservoir	4.0	3.5	3.5	3.5	4.0	3.5	3.5	5.0	**	4.0	**	**	3.8
Cork Brook	4.0	3.5	3.0	3.0	4.5	3.0	3.5	5.0	4.0	**	**	**	3.7
Rush Brook	7.0	3.0	3.0	3.5	5.0	3.5	4.5	6.5	7.5	**	**	**	4.8
Huntinghouse Brook	11.5	3.0	4.5	4.5	6.0	5.0	7.0	9.0	11.0	**	**	**	6.8
Harrisdale Brook	11.0	7.0	5.0	5.0	7.0	5.0	7.0	9.0	12.0	10.5	**	12.0	8.2
Blanchard Brook	3.0	2.5	2.0	3.0	4.0	2.5	2.5	5.0	**	**	**	**	3.1
Moswansicut Pond	6.5	5.0	5.5	5.5	7.0	5.0	5.0	6.5	7.0	6.0	7.0	**	6.0
Regulating Reservoir	6.0	6.0	2.0	4.5	5.0	3.0	4.5	7.0	8.0	9.0	5.0	8.5	5.7
Quonapaug Brook	3.5	5.0	2.5	3.5	5.0	3.5	5.0	7.0	**	**	**	**	4.4
Hemlock Brook	4.0	3.5	3.0	3.0	3.5	2.5	3.0	6.0	3.5	4.0	**	5.0	3.7
Betty Pond Stream	4.0	4.0	3.5	3.0	3.5	3.0	3.5	5.5	2.5	3.0	**	**	3.5
Spruce Brook	4.5	3.5	2.0	2.5	3.0	2.0	3.0	5.5	4.0	**	**	**	3.3
Brandy Brook	7.0	4.0	5.0	5.5	6.0	5.0	7.0	7.5	5.0	4.5	**	6.0	5.7
Moswansicut—South.	13.5	6.0	7.5	8.0	8.0	8.0	11.0	13.5	1.5	22.0	**	**	9.9
Windsor Brook	4.0	4.0	2.5	3.5	2.5	3.5	5.0	5.5	8.0	**	**	**	4.3
Paine Pond	5.5	3.0	2.5	3.0	4.5	3.0	3.5	3.5	1.0	1.0	**	**	3.0
Unnamed Brook—A.	.....	.....	.....	.....	.....	.....	6.0	7.0	**	**	**	**	6.5
Unnamed Brook—B.	.....	.....	.....	.....	.....	.....	.....	4.0	**	**	12.0	**	8.0

*Parts per million, except Hydrogen Ion Concentration.
 **No sample obtained—Brook or Stream was dry.
 Note: Unnamed Brook A is just North of Scituate Town Dump. Unnamed Brook B is Southwest of the Foster Nike Site.
 Hydrogen Ion Concentration determined by colorimetric method during Oct., Nov. and Dec., and by electrometric method during the remainder of the year.

TABLE 13
WATER PURIFICATION WORKS
CHEMICAL AND PHYSICAL CHARACTERISTICS OF WATER IN
VARIOUS PARTS OF THE DISTRIBUTION SYSTEM
YEAR ENDED SEPTEMBER 30, 1957

Monthly Averages	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
Hydrogen Ion Concentration													
Neutaconkanut Reservoir...	9.3	9.2	9.2	9.9	9.8	9.8	9.9	9.9	9.8	9.7	9.8	9.8	9.7
Phenix Ave., Cranston....	9.3	9.2	9.2	9.9	9.8	9.8	9.9	9.9	9.9	9.7	9.8	9.8	9.7
Westminster St., Olneyville	9.3	9.2	9.2	9.9	9.8	9.8	9.9	9.9	9.8	9.7	9.8	9.8	9.7
Budlong Road, Cranston...	9.3	9.2	9.2	9.9	9.8	9.8	9.9	9.9	9.9	9.7	9.8	9.8	9.7
Reservoir Ave., Cranston..	9.3	9.2	9.2	9.9	9.8	9.8	9.9	9.9	9.9	9.7	9.8	9.8	9.7
T. F. Green Airport, War..	9.3	9.2	9.3	9.9	9.8	9.8	9.9	9.9	9.9	9.7	9.8	9.8	9.7
Biltmore Hotel	9.3	9.2	9.3	9.9	9.8	9.8	9.9	9.9	9.9	9.7	9.8	9.8	9.7
Crown Hotel	9.3	9.2	9.3	9.9	9.8	9.8	9.9	9.9	9.9	9.7	9.8	9.8	9.7
State Office Bldg.	9.3	9.2	9.3	9.9	9.8	9.8	9.9	9.9	9.9	9.8	9.8	9.8	9.7
*Longview Reservoir	9.4	9.4	9.4	10.0	9.8	9.9	9.9	9.9	9.9	9.8	9.8	9.8	9.7
Phenolphthalein Alkalinity													
Neutaconkanut Reservoir...	7.5	6.3	6.0	6.3	6.1	6.1	6.4	6.5	6.7	6.5	6.8	7.8	6.6
Phenix Ave., Cranston....	7.6	6.2	6.3	6.5	6.0	6.2	6.5	6.6	6.6	6.6	6.9	8.0	6.7
Westminster St., Olneyville	7.6	6.1	6.4	6.5	6.0	6.2	6.4	6.6	6.7	6.5	6.9	7.9	6.6
Budlong Road, Cranston...	7.6	6.2	6.5	6.6	6.1	6.3	6.5	6.6	6.7	6.5	7.0	8.0	6.7
Reservoir Ave., Cranston..	7.6	6.1	6.5	6.5	6.1	6.3	6.5	6.6	6.7	6.5	7.0	8.0	6.7
T. F. Green Airport, War..	7.6	6.2	6.5	6.6	6.1	6.3	6.5	6.6	6.7	6.5	7.0	8.1	6.7
Biltmore Hotel	7.5	6.3	6.5	6.5	6.2	6.3	6.5	6.6	6.7	6.6	7.0	7.9	6.7
Crown Hotel	7.5	6.3	6.5	6.6	6.2	6.3	6.5	6.6	6.7	6.6	7.0	8.0	6.7
State Office Bldg.	7.6	6.3	6.5	6.6	6.2	6.4	6.6	6.6	6.8	6.6	7.0	7.9	6.7
*Longview Reservoir	8.7	8.0	7.3	7.6	7.3	6.9	7.1	7.2	7.4	7.1	7.4	8.3	7.5
Methyl Orange Alkalinity													
Neutaconkanut Reservoir...	14.6	12.5	12.3	12.3	12.0	12.1	12.5	12.6	13.0	13.1	13.8	15.8	13.0
Phenix Ave., Cranston....	14.8	12.2	12.4	12.4	11.9	12.2	12.6	12.7	12.9	13.2	13.8	16.1	13.1
Westminster St., Olneyville	14.7	12.0	12.5	12.5	12.0	12.2	12.5	12.7	13.0	13.1	13.8	16.1	13.1
Budlong Road, Cranston...	14.8	12.1	12.6	12.5	12.0	12.3	12.6	12.7	13.0	13.1	13.9	16.3	13.1
Reservoir Ave., Cranston..	14.7	12.2	12.6	12.4	12.0	12.3	12.6	12.7	13.0	13.1	13.9	16.1	13.1
T. F. Green Airport, War..	14.6	12.2	12.5	12.5	12.0	12.3	12.6	12.7	13.0	13.1	13.9	16.2	13.1
Biltmore Hotel	14.6	12.3	12.6	12.5	12.1	12.3	12.5	12.7	13.0	13.1	13.9	16.1	13.1
Crown Hotel	14.7	12.2	12.6	12.5	12.1	12.3	12.6	12.7	13.0	13.2	13.9	16.2	13.2
State Office Bldg.	14.8	12.3	12.7	12.5	12.1	12.4	12.7	12.8	13.1	13.1	13.9	16.2	13.2
*Longview Reservoir	16.9	14.8	13.7	13.8	13.5	13.6	13.5	13.9	14.3	14.1	14.5	16.5	14.4
Color													
Neutaconkanut Reservoir...	5	4	4	5	6	5	5	6	6	5	5	5	5
Phenix Ave., Cranston....	5	4	4	5	6	5	5	6	6	5	5	5	5
Westminster St., Olneyville	5	4	4	5	6	5	5	6	6	5	5	5	5
Budlong Road, Cranston...	5	4	4	5	6	5	5	6	6	5	5	5	5
Reservoir Ave., Cranston..	5	4	4	5	6	5	5	6	6	5	5	5	5
T. F. Green Airport, War..	5	4	4	5	6	5	5	6	6	5	5	5	5
Biltmore Hotel	5	4	4	5	6	5	5	6	6	5	5	5	5
Crown Hotel	5	4	4	5	6	5	5	6	6	5	5	5	5
State Office Bldg.	5	4	4	5	6	5	5	6	6	5	5	4	5
*Longview Reservoir	6	6	5	6	6	5	6	7	7	7	7	7	6
Iron													
Neutaconkanut Reservoir...	0.02	0.01	0.01	0.02	0.03	0.01	0.02	0.02	0.01	0.00	0.01	0.02	0.01
Phenix Ave., Cranston....	.01	.01	.01	.02	.02	.01	.01	.01	.01	.00	.01	.01	.01
Westminster St., Olneyville	.01	.01	.01	.02	.01	.01	.01	.01	.01	.00	.00	.01	.01
Budlong Road, Cranston...	.01	.01	.01	.02	.01	.01	.01	.01	.01	.00	.00	.01	.01
Reservoir Ave., Cranston..	.01	.01	.01	.02	.01	.01	.01	.01	.01	.00	.00	.01	.01
T. F. Green Airport, War..	.02	.01	.01	.04	.02	.02	.03	.04	.03	.03	.03	.06	.03
Biltmore Hotel .....	.01	.01	.01	.03	.01	.01	.01	.01	.01	.01	.01	.01	.01
Crown Hotel .....	.02	.02	.02	.03	.02	.01	.02	.03	.01	.01	.01	.02	.02
State Office Bldg. ....	.01	.01	.01	.02	.01	.01	.01	.01	.01	.01	.00	.01	.01
*Longview Reservoir .....	.07	.05	.06	.07	.07	.06	.06	.05	.05	.05	.07	.09	.06

*Sample obtained at Our Lady of Fatima Hospital.
 Note: Hydrogen Ion Concentration determined by colorimetric method during Oct., Nov. and Dec., and by electrometric method during the remainder of the year.

TABLE 13 (Continued)
WATER PURIFICATION WORKS
CHEMICAL AND PHYSICAL CHARACTERISTICS OF WATER IN
VARIOUS PARTS OF THE DISTRIBUTION SYSTEM
YEAR ENDED SEPTEMBER 30, 1957

Monthly Averages	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Ave. for Year
Chlorides													
Neutaconkanut Reservoir..	3.0	3.0	3.0	2.9	2.7	3.0	3.0	3.0	2.9	3.0	3.0	3.0	2.9
Phenix Ave., Cranston....	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Westminster St., Olneyville	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Budlong Road, Cranston...	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Reservoir Ave., Cranston...	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
T. F. Green Airport, War..	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Biltmore Hotel	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Crown Hotel	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
State Office Bldg.	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
*Longview Reservoir	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Nitrites													
Neutaconkanut Reservoir..	0.001	0.001	0.001	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Phenix Ave., Cranston....	.001	.001	.001	.002	.001	.001	.001	.001	.001	.001	.001	.001	.001
Westminster St., Olneyville	.001	.001	.002	.002	.001	.001	.001	.001	.001	.001	.001	.001	.001
Budlong Road, Cranston...	.001	.001	.002	.002	.001	.001	.001	.001	.001	.001	.001	.001	.001
Reservoir Ave., Cranston...	.001	.001	.002	.002	.001	.001	.002	.001	.001	.001	.001	.002	.001
T. F. Green Airport, War..	.001	.001	.002	.002	.002	.001	.001	.001	.001	.001	.001	.001	.001
Biltmore Hotel .....	.001	.001	.001	.002	.001	.001	.001	.001	.001	.001	.001	.001	.001
Crown Hotel .....	.001	.001	.001	.002	.001	.001	.001	.001	.001	.001	.001	.001	.001
State Office Bldg. ....	.001	.001	.001	.002	.001	.001	.001	.001	.001	.001	.001	.001	.001
*Longview Reservoir .....	.001	.001	.001	.002	.001	.001	.001	.001	.001	.001	.001	.001	.001
Taste													
Neutaconkanut Reservoir..	0	0	0	0	0	0	0	0	0	0	0	0	0
Phenix Ave., Cranston....	0	0	0	0	0	0	0	0	0	0	0	0	0
Westminster St., Olneyville	0	0	0	0	0	0	0	0	0	0	0	0	0
Budlong Road, Cranston...	0	0	0	0	0	0	0	0	0	0	0	0	0
Reservoir Ave., Cranston...	0	0	0	0	0	0	0	0	0	0	0	0	0
T. F. Green Airport, War..	0	0	0	0	0	0	0	0	0	0	0	0	0
Biltmore Hotel	0	0	0	0	0	0	0	0	0	0	0	0	0
Crown Hotel	0	0	0	0	0	0	0	0	0	0	0	0	0
State Office Bldg.	0	0	0	0	0	0	0	0	0	0	0	0	0
*Longview Reservoir	0	0	0	0	0	0	0	0	0	0	0	0	0
Odor													
Neutaconkanut Reservoir..	0	0	0	0	0	0	0	0	0	0	0	0	0
Phenix Ave., Cranston....	0	0	0	0	0	0	0	0	0	0	0	0	0
Westminster St., Olneyville	0	0	0	0	0	0	0	0	0	0	0	0	0
Budlong Road, Cranston...	0	0	0	0	0	0	0	0	0	0	0	0	0
Reservoir Ave., Cranston...	0	0	0	0	0	0	0	0	0	0	0	0	0
T. F. Green Airport, War..	0	0	0	0	0	0	0	0	0	0	0	0	0
Biltmore Hotel	0	0	0	0	0	0	0	0	0	0	0	0	0
Crown Hotel	0	0	0	0	0	0	0	0	0	0	0	0	0
State Office Bldg.	0	0	0	0	0	0	0	0	0	0	0	0	0
*Longview Reservoir	0	0	0	0	0	0	0	0	0	0	0	0	0
Fluoride													
Neutaconkanut Reservoir..	1.14	1.12	1.13	1.15	1.13	1.18	1.14	1.09	0.99	0.94	0.96	0.96	1.08
Phenix Ave., Cranston....	1.06	1.10	1.13	1.13	1.11	1.14	1.11	1.11	.97	.90	.93	.97	1.05
Westminster St., Olneyville	1.13	1.11	1.14	1.16	1.11	1.16	1.12	1.12	.99	.97	.99	.99	1.08
Budlong Road, Cranston...	1.08	1.12	1.15	1.12	1.11	1.15	1.11	1.11	.98	.93	.93	.98	1.06
Reservoir Ave., Cranston...	1.08	1.11	1.16	1.16	1.13	1.16	1.13	1.11	.96	.89	.91	.96	1.06
T. F. Green Airport, War..	1.12	1.05	1.12	1.18	1.13	1.17	1.14	1.12	.98	.98	.98	.98	1.08
Biltmore Hotel	1.21	1.10	1.12	1.16	1.13	1.15	1.13	1.10	.95	.92	.97	.98	1.08
Crown Hotel	1.17	1.09	1.12	1.14	1.12	1.16	1.11	1.11	.96	.93	.98	.97	1.07
State Office Bldg.	1.16	1.10	1.13	1.14	1.13	1.15	1.13	1.11	.96	.93	.99	.98	1.07
*Longview Reservoir	1.08	1.09	1.05	1.15	1.11	1.12	1.12	1.11	.99	.92	.95	.96	1.05

*Sample obtained at Our Lady of Fatima Hospital.

TABLE 14

**WATER PURIFICATION WORKS
BACTERIOLOGICAL EXAMINATION OF WATER IN
PROCESS OF FILTRATION
YEAR ENDED SEPTEMBER 30, 1957**

1956-57	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.	28	0	15	1400	0	265	80	0	16	6	0	0
Nov.	80	0	21	5000	1	609	200	0	65	7	0	1
Dec.	410	2	40	250	0	86	200	0	48	0	0	0
Jan.	80	8	25	350	0	76	150	0	30	90	0	4
Feb.	175	1	25	20	0	5	40	0	13	6	0	0
Mar.	500	2	50	75	0	21	80	0	21	2	0	0
Apr.	150	13	46	450	3	115	300	2	84	15	0	1
May	20	0	9	150	0	31	110	0	27	8	0	1
June	22	0	9	65	0	11	60	0	10	8	0	1
July	80	0	12	300	0	40	85	0	27	90	0	5
Aug.	90	0	30	120	0	46	90	0	39	8	0	0
Sept.	90	0	46	110	0	42	80	0	31	6	0	0
For Year	500	0	27	5000	0	112	300	0	34	90	0	1

TABLE 15
WATER PURIFICATION WORKS
BACTERIOLOGICAL EXAMINATION OF WATER IN
PROCESS OF FILTRATION
YEAR ENDED SEPTEMBER 30, 1957

1956-57	BACTERIA per ml. (24 HOURS ON AGAR AT 35°C)											
	Raw Water			Settled Water			Filtered Water			Tap Water		
	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg
Oct.	12	0	4	2500	0	232	30	0	2	7	0	1
Nov.	110	0	8	2500	0	276	15	0	1	250	0	12
Dec.	90	0	8	20	0	4	4	0	1	90	0	7
Jan.	220	0	15	250	0	11	125	0	6	200	0	13
Feb.	31	1	9	120	0	11	2	0	0	160	0	8
Mar.	70	0	6	55	0	3	57	0	2	320	0	13
Apr.	250	0	22	250	0	11	8	0	0	15	0	1
May	980	0	40	5	0	1	22	0	1	6	0	1
June	12	0	2	14	0	1	28	0	2	50	0	3
July	35	0	5	60	0	3	30	0	2	6	0	0
Aug.	400	0	20	7	0	1	7	0	1	35	0	2
Sept.	75	3	28	22	0	3	200	0	12	250	0	12
For Year	980	0	14	2500	0	46	200	0	2	320	0	6

TABLE 16
WATER PURIFICATION WORKS
BACTERIOLOGICAL EXAMINATION OF WATER IN
PROCESS OF FILTRATION
YEAR ENDED SEPTEMBER 30, 1957

1956-57	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.	78	52	.067	52	3	.006	52	0	.000	130	0	.000
Nov.	69	57	.083	46	2	.004	46	0	.000	115	0	.000
Dec.	75	66	.088	50	3	.006	50	0	.000	125	0	.000
Jan.	78	37	.047	52	2	.004	52	0	.000	125	0	.000
Feb.	69	15	.022	46	2	.004	46	0	.000	115	0	.000
Mar.	78	24	.031	52	0	.000	52	0	.000	130	0	.000
Apr.	78	21	.027	52	0	.000	52	0	.000	130	0	.000
May	78	7	.009	52	0	.000	52	0	.000	130	0	.000
June	75	1	.001	50	0	.000	50	2	.004	125	0	.000
July	78	13	.017	52	0	.000	52	1	.002	130	0	.000
Aug.	78	41	.052	52	1	.002	52	1	.002	130	0	.000
Sept.	72	31	.043	48	2	.004	48	0	.000	120	0	.000
For Year	906	365	.040	604	15	.002	604	4	.001	1505	0	.000

TABLE 17
WATER PURIFICATION WORKS
BACTERIOLOGICAL EXAMINATION OF WATER IN VARIOUS
BROOKS AND RESERVOIRS ON SCITUATE WATERSHED
YEAR ENDED SEPTEMBER 30, 1957

Monthly Analyses	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													
Coventry Brook	2200	600	40	75	60	550	170	450	**	**	**	**	518
Wilbur Brook	1500	220	120	150	260	120	3000	300	3000	**	**	**	963
Westconnaug Res.	45	4200	130	110	280	230	1800	80	650	450	200	1000	764
Barden Reservoir	62	270	60	1200	30	280	400	5	**	50	**	**	262
Cork Brook	115	2900	45	90	140	220	150	15	900	**	**	**	508
Rush Brook	180	2400	270	120	170	450	300	70	1200	**	**	**	573
Huntinghouse Brook	60	300	340	600	180	65	200	25	1500	**	**	**	363
Harrisdale Brook	120	35	600	550	120	60	180	10	800	170	**	3000	513
Blanchard Brook	75	1300	450	120	90	110	220	110	**	**	**	**	309
Moswansicut Pond	110	150	70	18	40	100	160	2	1100	150	320	**	202
Regulating Reservoir	300	60	140	150	140	180	150	90	500	65	350	10000	1010
Quonapaug Brook	450	2500	150	50	35	30	90	40	**	**	**	**	418
Hemlock Brook	85	1800	290	1700	90	500	100	32	19	70	**	4000	790
Betty Pond Stream	150	70	160	300	15	14	110	30	350	900	**	**	210
Spruce Brook	170	400	150	90	70	40	190	80	90	**	**	**	142
Brandy Brook	45	2200	400	150	130	75	130	20	35	120	**	200	319
Moswansicut—South	1200	3000	3000	250	120	420	270	8	2100	18000	**	**	2837
Windsor Brook	200	330	200	160	60	700	250	6	700	**	**	**	289
Paine Pond	2500	2600	1500	1500	240	32	1000	18	110	3000	**	**	1250
Unnamed Brook—A.	.....	.....	.....	.....	.....	.....	900	35	**	**	**	**	467
Unnamed Brook—B.	.....	.....	.....	.....	.....	.....	.....	8	**	**	40000	**	20004
Bacteria Per Ml. 24 Hours on Agar at 35°C													
Coventry Brook	30	170	15	60	2000	150	55	130	**	**	**	**	326
Wilbur Brook	48	200	250	25	1400	50	400	1400	4000	**	**	**	864
Westconnaug Res.	75	300	12	9	500	20	170	13	1800	2500	280	700	531
Barden Reservoir	17	22	380	30	10	5000	55	10	**	55	**	**	620
Cork Brook	20	330	6	13	1000	15	25	35	320	**	**	**	196
Rush Brook	56	250	80	17	8	10	40	20	370	**	**	**	94
Huntinghouse Brook	38	500	400	55	30	25	8	120	1100	**	**	**	253
Harrisdale Brook	43	40	250	40	15	60	35	6	650	300	**	4000	494
Blanchard Brook	62	170	220	35	600	60	210	180	**	**	**	**	192
Moswansicut Pond	60	11	15	5	500	30	23	45	800	180	300	**	179
Regulating Reservoir	50	20	110	5	100	20	40	8	28	100	450	8000	744
Quonapaug Brook	45	95	60	24	900	1000	70	40	**	**	**	**	279
Hemlock Brook	30	30	100	35	40	2000	90	220	80	65	**	120	255
Betty Pond Stream	40	60	30	35	10	50	130	130	420	400	**	**	130
Spruce Brook	60	80	22	4	5	1000	38	7	30	**	**	**	138
Brandy Brook	55	210	90	25	45	5000	40	70	70	150	**	90	531
Moswansicut—South	150	230	20	22	300	2000	25	10	400	5000	**	**	816
Windsor Brook	40	90	25	8	4	500	50	1000	500	**	**	**	246
Paine Pond	1800	180	900	60	800	10	200	35	24	900	**	**	491
Unnamed Brook—A.	.....	.....	.....	.....	.....	.....	150	40	**	**	**	**	95
Unnamed Brook—B.	.....	.....	.....	.....	.....	.....	.....	10	**	**	750	**	380
B. Coll													
Index Per 100 Ml.													
Coventry Brook	110†	110†	25	0	0	70	25	25	**	**	**	**	.....
Wilbur Brook	70	110†	25	6	70	70	70	25	25	**	**	**	.....
Westconnaug Res.	6	110†	20	0	0	25	70	25	70	70	110†	110†	.....
Barden Reservoir	5	70	70	25	6	70	6	6	**	**	**	**	.....
Cork Brook	6	110†	25	13	6	25	6	110†	70	**	**	**	.....
Rush Brook	70	110†	70	70	25	13	70	25	13	**	**	**	.....
Huntinghouse Brook	13	110†	70	6	6	70	25	25	25	**	**	**	.....
Harrisdale Brook	6	110†	70	25	70	70	25	25	25	110†	**	0	.....
Blanchard Brook	25	110†	25	70	25	13	25	25	**	**	**	**	.....
Moswansicut Pond	110†	110†	0	0	0	25	25	6	70	25	110†	**	.....
Regulating Reservoir	20	25	70	25	70	6	25	70	25	13	110†	110†	.....
Quonapaug Brook	110†	110†	13	25	25	25	25	110†	**	**	**	**	.....
Hemlock Brook	70	110†	70	20	70	25	6	70	6	6	**	0	.....
Betty Pond Stream	6	70	70	0	0	6	6	6	6	6	**	**	.....
Spruce Brook	13	110†	25	0	0	13	25	25	110†	**	**	**	.....
Brandy Brook	6	110†	110†	0	25	25	70	70	0	25	**	0	.....
Moswansicut—South	110†	110†	110†	6	10	13	70	110†	110†	110†	**	**	.....
Windsor Brook	25	110†	110†	0	25	25	25	25	70	**	**	**	.....
Paine Pond	110†	110†	13	25	6	13	70	70	6	70	**	**	.....
Unnamed Brook—A.	.....	.....	.....	.....	.....	.....	25	70	**	**	**	**	.....
Unnamed Brook—B.	.....	.....	.....	.....	.....	.....	.....	6	**	**	110†	**	.....

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

TABLE 18
WATER PURIFICATION WORKS
BACTERIOLOGICAL EXAMINATION OF WATER IN
VARIOUS PARTS OF THE DISTRIBUTION SYSTEM
YEAR ENDED SEPTEMBER 30, 1957

Monthly Averages	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
Bacteria Per Mi. 48 Hours on Agar at 20°C													
Neutaconkanut Reservoir..	0	0	0	0	0	0	0	0	0	5	0	0	0
Phenix Ave., Cranston....	10	7	3	0	0	1	0	0	1	2	0	1	2
Westminster St., Olneyville	0	0	0	0	0	0	0	0	0	1	0	0	0
Budlong Road, Cranston..	0	0	0	0	0	0	1	0	1	4	0	0	0
Reservoir Ave., Cranston..	0	21	1	0	0	0	0	0	0	1	0	0	2
T. F. Green Airport, War..													
Biltmore Hotel	0	0	0	0	0	0	0	0	0	2	0	0	0
Crown Hotel	0	0	0	0	0	0	0	0	0	0	0	0	0
State Office Bldg.....	0	0	0	0	0	0	0	0	0	0	0	0	0
*Longview Reservoir	0	0	0	0	0	0	0	0	1	2	0	4	0
Bacteria Per Mi. 24 Hours on Agar at 35°C													
Neutaconkanut Reservoir..	2	75	17	15	2	0	0	9	1	9	3	6	11
Phenix Ave., Cranston....	11	70	42	36	53	0	2	0	0	5	12	1	19
Westminster St., Olneyville	4	4	8	37	26	1	2	0	1	4	38	3	11
Budlong Road, Cranston..	3	85	20	5	2	0	59	2	25	0	0	0	17
Reservoir Ave., Cranston..	4	1	11	10	3	0	0	1	0	1	0	1	3
T. F. Green Airport, War..													
Biltmore Hotel	1	13	35	7	20	1	1	2	0	5	1	1	7
Crown Hotel	1	193	52	15	21	0	0	2	4	8	10	1	25
State Office Bldg.....	4	86	54	7	2	0	1	4	1	3	15	3	15
*Longview Reservoir	0	0	19	7	1	0	0	0	91	3	4	6	11
B. Coli Index Per Mi.													
Neutaconkanut Reservoir..	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Phenix Ave., Cranston....	.000	.000	.000	.001	.000	.000	.000	.000	.000	.000	.000	.000	.000
Westminster St., Olneyville	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Budlong Road, Cranston..	.001	.000	.000	.001	.000	.000	.000	.000	.000	.000	.000	.000	.000
Reservoir Ave., Cranston..	.000	.000	.011	.000	.000	.000	.000	.000	.000	.000	.000	.000	.001
T. F. Green Airport, War..													
Biltmore Hotel .....	.001	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Crown Hotel .....	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
State Office Bldg.....	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
*Longview Reservoir .....	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

*Sample obtained at Our Lady of Fatima Hospital.

TABLE 19
WATER PURIFICATION WORKS
MINERAL ANALYSIS OF WATER—YEAR ENDED SEPT. 30, 1957

Parts per Million	RAW WATER*					TAP WATER					
	1956		1957			1956		1957			Avg.
	Oct.-Dec.	Jan.-Mar.	Apr.-June	July-Sept.	Avg.	Oct.-Dec.	Jan.-Mar.	Apr.-June	July-Sept.		
Aluminum	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.03	0.00	0.01	
Arsenic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Calcium	2.28	2.61	2.44	2.51	2.46	7.30	8.99	8.68	8.94	8.48	
Chloride	2.88	2.93	2.98	3.00	2.95	2.96	3.00	3.01	3.03	3.00	
Copper	0.03	0.07	0.05	0.05	0.05	0.01	0.01	0.01	0.00	0.01	
Fluoride	0.17	0.17	0.16	0.15	0.16	1.13	1.14	1.06	0.95	1.07	
Hardness	9	9	9	10	9	25	25	26	28	26	
Iron	0.08	0.11	0.05	0.11	0.09	0.02	0.02	0.01	0.01	0.01	
Lead	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Magnesium	0.60	0.70	0.70	0.50	0.62	0.54	0.70	0.40	1.00	0.56	
Manganese	0.03	0.01	0.01	0.05	0.02	0.00	0.00	0.00	0.00	0.00	
Phenolic Compounds	0.00	0.000	0.00	0.000	0.000	0.00	0.000	0.00	0.00	0.00	
Selenium	0.00	0.000	0.00	0.000	0.000	0.00	0.000	0.00	0.00	0.00	
Silica	4.00	5.00	5.00	5.00	4.75	4.00	4.50	4.50	5.00	4.50	
Sulphate	7.20	7.10	7.30	8.50	7.52	12.40	12.60	13.40	13.80	13.05	
Total Solids	31	39	39	32	35	48	54	57	54	53	
Loss On Ignition	13	15	14	12	14	19	20	14	11	16	
Total Alkalinity	4.00	3.83	3.83	4.20	3.96	13.20	12.20	12.77	14.13	13.07	
Phenolphthalein Alk.	0.00	0.00	0.00	0.00	0.00	6.67	6.27	6.60	7.10	6.66	
Zinc	0.00	0.0	0.00	0.0	0.0	0.00	0.0	0.00	0.0	0.0	

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

TABLE 20

WATER PURIFICATION WORKS

SANITARY CHEMICAL ANALYSIS (P.P.M.)—YEAR ENDED SEPT. 30, 1957

1956-1957	RAW WATER*										TAP WATER										1956-1957				
	Ammonia		Nitrates		Chlorides		Dissolved Oxygen		Total Solids		Loss on Ignition		Ammonia		Nitrates		Chlorides		Dissolved Oxygen			Total Solids		Loss on Ignition	
	Free	Alb.					P.P.M.	% Sat.				Free	Alb.						P.P.M.	% Sat.					
Oct.	0.024	0.101	0.001	0.04	2.9	9.6	92.6	18	35	18	0.016	0.079	0.001	0.04	3.0	0.04	3.0	0.04	3.0	0.04	3.0	49	20	20	Oct.
Nov.	0.028	0.038	0.001	0.05	2.9	10.9	91.9	19	27	19	0.020	0.041	0.001	0.02	3.0	0.02	3.0	0.02	3.0	0.02	3.0	44	18	18	Nov.
Dec.	0.032	0.086	0.001	0.01	3.0	12.3	88.9	12	31	12	0.032	0.038	0.001	0.01	3.0	0.01	3.0	0.01	3.0	0.01	3.0	52	20	20	Dec.
Jan.	0.024	0.078	0.001	0.01	2.9	12.6	93.5	16	38	16	0.020	0.038	0.001	0.01	3.0	0.01	3.0	0.01	3.0	0.01	3.0	61	29	29	Jan.
Feb.	0.020	0.082	0.001	0.02	2.9	12.6	92.2	16	36	16	0.013	0.042	0.001	0.04	3.0	0.04	3.0	0.04	3.0	0.04	3.0	52	12	12	Feb.
Mar.	0.016	0.078	0.001	0.01	3.0	12.0	96.1	14	43	14	0.006	0.046	0.001	0.02	3.0	0.02	3.0	0.02	3.0	0.02	3.0	49	18	18	Mar.
Apr.	0.004	0.066	0.001	0.01	3.0	9.9	81.8	15	41	15	0.004	0.054	0.001	0.01	3.0	0.01	3.0	0.01	3.0	0.01	3.0	53	14	14	Apr.
May	0.008	0.070	0.000	0.02	2.9	10.9	91.2	14	37	14	0.002	0.048	0.001	0.04	3.0	0.04	3.0	0.04	3.0	0.04	3.0	57	9	9	May
June	0.016	0.078	0.001	0.04	3.0	8.4	78.9	15	38	15	0.002	0.054	0.001	0.04	3.1	0.04	3.1	0.04	3.1	0.04	3.1	61	18	18	June
July	0.032	0.086	0.000	0.30	3.0	6.7	64.6	37	37	15	0.007	0.054	0.001	0.20	3.0	0.20	3.0	0.20	3.0	0.20	3.0	58	20	20	July
Aug.	0.048	0.086	0.000	0.02	3.0	5.1	51.3	10	31	10	0.016	0.070	0.001	0.02	3.0	0.02	3.0	0.02	3.0	0.02	3.0	52	4	4	Aug.
Sept.	0.008	0.048	0.000	0.04	3.0	8.7	90.2	12	27	12	0.010	0.026	0.001	0.06	3.0	0.06	3.0	0.06	3.0	0.06	3.0	52	8	8	Sept.
Avg.	0.022	0.075	0.001	0.05	2.9	10.0	84.4	14	35	14	0.012	0.047	0.001	0.04	3.0	0.04	3.0	0.04	3.0	0.04	3.0	53	16	16	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, 1957

SOURCE OF WATER TESTED	Frequency of Test or Examination	Number of Tests or Analyses Made During the Fiscal Year						
		Chemical	Bacteriological	Microscopical	Sanitary Chemical	Mineral	Miscellaneous	Total
I BROOKS AND STREAMS ON WATERSHED Fourteen Brooks, Two Streams and One Pond.....	Monthly.....	1,022	1,255	..	48	..	..	2,325
II SMALLER STORAGE RESERVOIRS ON WATERSHED Regulating Reservoir..... Westconaug Reservoir..... Barden Reservoir..... Moswansicut Pond.....	Monthly..... Monthly..... Monthly..... Monthly.....	84 84 63 77	105 105 72 93	.. .. .. ..	.. .. .. ..	.. .. .. ..	.. .. .. ..	189 189 135 170
III SCITUATE RESERVOIR Surface Water..... Subsurface Water (See Purif. Wks.—Raw Water).....	Bi-Weekly.....	208 ..	338 ..	20 ..	156 ..	.. ..	.. ..	722 ..
IV PAWTUCKET RIVER—BELOW SCITUATE DAM Scituate Dam Meter Chamber..... Eskeville R. L..... Twelve other locations on Pawtucket River.....	Bi-Weekly..... Bi-Weekly..... Bi-Weekly.....	182 182 2,348	.. .. ..	.. .. ..	156 156 2,160	.. .. ..	.. .. ..	338 338 4,508
V WATER PURIFICATION WORKS Raw Water (from Bottom of Scit. Res.)..... Raw Water (from Bottom of Scit. Res.)..... Raw Water (from Bottom of Scit. Res.)..... ***Raw Water (from Bottom of Scit. Res.)..... Aerated Influent..... Mixer..... Settled..... Settled..... Settled..... Filtered..... Filtered..... Unchlorinated Effluent..... Unchlorinated Effluent..... Unchlorinated Effluent..... Chlorinated Effluent..... Raw Water (from Bottom of Scituate Reservoir)..... Unchlorinated Effluent.....	Daily..... Weekly..... Monthly..... Every 13 weeks..... Daily..... Daily..... Daily..... Weekly..... Monthly..... Daily..... Monthly..... Daily..... Weekly..... Monthly..... Daily..... Daily at 3:00 P.M. Daily at 3:00 P.M.	3,008 726 1,845 2,480 .. 1,089 .. 3,206 .. 1,500 988 988	3,804 1,230 1,213 .. 1,201 997	20 20 20	1,432 52* 72** 48** .. 48** 1,452 52* 24** 1,250 988 988	.. .. 36 363	8,627 72 72 36 726 1,845 4,073 72 48 1,089 48 5,871 72 24 4,502 3,177 2,973	

Table 21 (Continued)

WATER PURIFICATION WORKS

LABORATORY EXAMINATIONS MADE DURING THE FISCAL YEAR ENDED SEPTEMBER 30, 1957

SOURCE OF WATER TESTED	Frequency of Test or Examination	Number of Tests or Analyses Made During the Fiscal Year						
		Chemical	Bacteriological	Microscopical	Sanitary Chemical	Mineral	Miscellaneous	Total
VI NEUTACONKANUT DISTRIBUTION RESERVOIR								
Sample from nearby Tap.....	Daily.....	1,500	1,750	20	1,000	..	..	4,250
Sample from nearby Tap.....	Bi-Weekly.....	..	..	..	..	..	..	20
VII LONGVIEW DISTRIBUTION RESERVOIR								
Sample from nearby Tap.....	Daily.....	1,500	1,750	20	1,000	..	..	4,250
Sample from nearby Tap.....	Bi-Weekly.....	..	..	..	..	..	..	20
VIII DISTRIBUTION SYSTEM								
Water Supply Board Bldg. Tap Water.....	Daily.....	2,408	2,110	20	1,505	..	..	6,023
Water Supply Board Bldg. Tap Water.....	Bi-Weekly.....	..	..	..	..	..	..	20
Water Supply Board Bldg. Tap Water.....	Monthly.....	..	..	..	60**	..	..	60
***Water Supply Board Bldg. Tap Water.....	Every 13 Weeks.....	..	..	..	..	32	..	32
****Sectional Tests.....	Monthly.....	536	384	..	288	..	..	1,208
Consumers' Complaints (48 during the year).....	..	402	235	..	284	..	..	921
Sterilization of Newly Laid Mains.....	..	1,072	139	..	..	..	..	1,211
†Sectional Tests.....	Daily.....	10,368	12,119	..	6,912	..	..	29,399
IX MISCELLANEOUS TESTS								
Coagulation Tests to Determine Chemical Dosages.....	..	204	..	..	..	..	84	288
Analysis of Ferrit-Floc used for Treatment.....	..	31	..	..	..	..	17	58
Analysis of Quicklime used for Treatment.....	..	16	..	..	..	..	32	48
Analysis of Sodium Silicofluoride used for Treatment.....	..	6	..	..	..	..	..	6
Water, Filter Sand and Other Materials.....	..	638	1,545	..	129	..	374	2,686
Totals.....	.....	37,709	33,130	140	20,471	68	1,233	92,751

*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 FOR YEAR ENDED SEPTEMBER 30, 1957

1956-1957	ELECTRICALLY-DRIVEN PUMPS										GASOLINE ENGINE-DRIVEN PUMP					Total Water Pumped Mil. Gals.	Avg. Per Day	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			Operated			Water Pumped Mil. Gals.	KWH	Cost	Operated			Water Pumped Mil. Gals.	Gasoline Used Gals.	Oil Used Qts.			
	Days	Hours and Minutes	Water Pumped Mil. Gals.	Days	Hours and Minutes	Days				Hours and Minutes	Days	Hours and Minutes						
Oct.	6	115-45	19.06	26	548-30	147.38	69,900	\$ 1,074.84	4	4-00	1.45	98	2	167.89	5.42	185		
Nov.	28	637-30	105.87	3	67-00	18.16	50,100	863.09	4	4-00	1.39	109	6	125.42	4.18	385		
Dec.	31	739-00	122.70	0	0	0	36,500	662.84	4	4-00	1.40	119	4	124.40	4.00	743		
Jan.	31	715-00	121.50	2	24-00	6.33	50,100	895.14	5	5-00	1.81	90	4	129.64	4.18	1,350		
Feb.	28	668-00	113.37	0	0	0	46,200	793.21	4	4-00	1.43	102	3	114.80	4.10	960		
Mar.	31	740-00	135.09	0	0	0	41,700	747.99	4	4-00	1.40	86	3	126.49	4.08	593		
Apr.	30	715-00	121.04	0	0	0	42,900	768.55	4	4-00	1.44	89	22	122.48	4.08	532		
May	0	0	0	31	668-30	180.04	63,600	1,072.23	5	5-00	1.83	140	2	181.87	5.87	0		
June	15	335-30	63.70	30	569-30	136.05	83,100	1,417.79	3	3-00	1.03	60	2	200.78	6.69	0		
July	31	731-30	132.54	27	274-00	50.50	72,600	1,303.27	5	5-00	1.70	100	2	184.74	5.96	0		
Aug.	31	730-30	128.76	6	76-30	14.31	57,600	1,125.80	4	4-00	1.36	112	4	144.63	4.67	0		
Sept.	30	713-30	123.13	0	0	0	41,400	847.77	4	4-00	1.40	102	2	124.53	4.15	140		
Totals	292	6,841-15	1,176.76	125	2,228-00	552.97	655,500	\$11,578.52	50	50-00	17.64	1,207	56	1,747.37	4.79	4,888		

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

TABLE 23
WATER DISTRIBUTION SYSTEM
BATH STREET HIGH SERVICE PUMPING STATION
OPERATING STATISTICS FOR YEAR ENDED SEPTEMBER 30, 1957

1956-1957	ELECTRICALLY-DRIVEN PUMPS										GASOLINE ENGINE-DRIVEN PUMPS										TOTAL WATER PUMPED Mil. Gals.	Avg. per Day	Oil Used For Month	Fuel Oil Used for Heating Gals.	
	Pump No. 1, 2000 GPM. TDH 98'					Pump No. 2, 2000 GPM. TDH 98'					Pump No. 3, 2000 GPM. TDH 98', 150 HP Sterling Engine					Pump No. 4, 2000 GPM. TDH 98', 150 HP Sterling Engine									
	Operated		Operated		Operated		Operated		Operated		Operated		Operated		Operated		Operated		Water Pumped Mil. Gals.	Gasoline Used Gals.					Oil Used Qts.
	Days	Hours and Minutes	Days	Hours and Minutes	Days	Hours and Minutes	Days	Hours and Minutes	Days	Hours and Minutes	Days	Hours and Minutes	Days	Hours and Minutes	Days	Hours and Minutes	Days	Hours and Minutes							
Oct.	26	215-15	29.45	29.45	3	22-30	2.97	9.240	\$ 281.76	0	0	0	0	2	2-15	0.25	18	0	0	32.92	1.06	0	0		
Nov.	27	429-30	59.65	28.580	9	46-45	6.23	28.580	556.98	0	0	0	0	2	2-00	0.27	15	0	0	66.41	2.21	200	200		
Dec.	22	353-15	49.60	23,800	12	140-15	19.77	23,800	347.33	0	0	0	0	2	1-15	0.17	4	0	0	69.73	2.25	200	200		
Jan.	15	204-30	28.70	29,620	19	277-45	38.83	29,620	626.74	0	0	0	0	1	1-00	0.14	12	0	0	67.81	2.19	400	400		
Feb.	14	214-00	30.08	28,000	14	215-30	30.27	28,000	552.12	0	0	0	0	2	1-45	0.24	11	0	0	60.89	2.17	400	400		
Mar.	16	246-00	34.73	25,480	15	226-00	31.03	25,480	527.75	0	0	0	0	1	1-00	0.14	8	0	0	66.63	2.15	391	391		
Apr.	14	203-00	28.22	27,300	20	305-30	42.51	27,300	552.14	0	0	0	0	2	2-00	0.28	14	0	0	71.29	2.34	0	0		
May	21	262-30	35.00	24,220	18	188-00	24.92	24,220	566.85	6	6	6	6	2	2-00	0.27	13	6	6	60.46	1.95	0	0		
June	29	495-30	63.28	53,480	30	523-30	67.12	53,480	913.66	10	10	10	10	1	1-00	0.13	7	8	8	130.66	4.36	0	0		
July	31	526-00	67.26	60,480	31	546-00	69.81	60,480	1,051.06	0	0	0	0	1	1-00	0.13	4	0	0	137.33	4.43	0	0		
Aug.	28	364-45	47.70	48,860	30	445-00	58.37	48,860	867.33	0	0	0	0	1	1-00	0.13	5	0	0	106.30	3.43	0	0		
Sept.	27	346-30	46.88	35,000	25	318-00	42.75	35,000	707.14	0	0	0	0	1	1-00	0.13	10	0	0	89.89	3.00	0	0		
Totals	270	3,860-45	520.55	393,960	226	3,254-45	435.18	\$7,730.26	18	17-25	2.35	122	16	18	17-00	2.24	120	16	16	960.32	2.63	1,791	1,791		

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

TABLE 25

WATER DISTRIBUTION SYSTEM
LONGVIEW DISTRIBUTION RESERVOIR*

OPERATING STATISTICS FOR YEAR ENDED SEPTEMBER 30, 1957

1956-1957	OPERATING CHARACTERISTICS DURING MONTH													
	7 A.M. Statistics on First Day of Month		Water Level			Storage—Mil. Gals.			Daily Water Level Fluctuation—Ft.			Daily Storage Fluctuation—M. G.		
	Water Level	Storage Mil. Gals.	Max.	Min.	Avg. †	Max.	Min.	Avg. †	Max.	Min.	Avg.	Max.	Min.	Avg.
Oct.	305.00	11.94	305.41	302.75	304.62	12.13	10.90	11.76	2.50	1.09	1.99	1.73	0.50	0.95
Nov.	304.25	11.59	305.44	302.44	304.60	12.14	10.75	11.75	2.23	0.64	1.58	1.03	0.30	0.74
Dec.	304.66	11.78	304.96	302.89	304.55	11.92	10.96	11.73	1.77	0.78	1.30	0.83	0.36	0.60
Jan.	304.32	11.62	305.10	302.59	304.72	11.99	10.82	11.81	1.96	0.72	1.33	0.91	0.33	0.62
Feb.	304.60	11.75	305.23	302.95	304.75	12.04	10.99	11.82	1.85	1.05	1.35	0.86	0.49	0.63
Mar.	304.80	11.85	305.26	303.03	304.76	12.06	11.02	11.83	1.82	0.76	1.27	0.84	0.36	0.59
Apr.	304.85	11.87	305.23	302.00	304.84	12.04	10.55	11.86	3.02	0.94	1.56	1.40	0.13	0.69
May	304.53	11.72	306.19	300.71	305.00	12.48	9.95	11.94	4.58	0.95	2.24	2.12	0.44	1.04
June	305.00	11.94	306.45	297.69	304.47	12.58	8.55	11.69	7.16	1.57	3.76	3.32	0.72	1.74
July	304.50	11.71	304.93	298.92	304.41	11.91	9.12	11.66	5.66	1.41	2.87	2.62	0.66	1.32
Aug.	303.90	11.42	304.96	300.88	304.43	11.92	10.02	11.67	3.54	0.45	2.00	1.64	0.21	0.93
Sept.	304.74	11.82	305.03	301.96	304.44	11.95	10.53	11.68	3.06	1.12	1.82	1.41	0.53	0.85
For Year	—	—	306.45	297.69	304.63	12.58	8.55	11.77	7.16	0.45	1.92	3.32	0.13	0.89

*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, ADDED AND REPLACED
YEAR ENDED SEPTEMBER 30, 1957

	PIPE LAID IN FEET (Including Pipe Replaced)					PIPE REMOVED IN FEET (Including Pipe Replaced)				
	6"	8"	12"	16"	Totals	6"	8"	12"	16"	Totals
Providence.....	6,376.68	1,946.90	894.02	2,641.52	11,859.12	826.67	66.00	835.38	1,238.00	2,966.05
Cranston.....	6,697.40	5,304.48	2,324.92	0	14,326.80	0	16.83	0	0	16.83
Johnston.....	2,322.94	11,160.01	0	0	13,482.95	446.80	0	0	0	446.80
North Providence..	5,127.35	5,313.81	0	0	10,441.16	0	3.33	0	0	3.33
Smithfield	0	0	0	0	0	0	0	0	0	0
Totals.....	20,524.37	23,725.20	3,218.94	2,641.52	50,110.03	1,273.47	86.16	835.38	1,238.00	3,433.01

	NET LENGTH IN FEET ADDED TO DISTRIBUTION SYSTEM					PIPE REPLACED IN FEET				
	6"	8"	12"	16"	Totals	6"	8"	12"	16"	Totals
Providence.....	+5,550.01	+1,880.90	+58.64	+1,403.52	+8,893.07	97.00	0	0	0	97.00
Cranston.....	+6,697.40	+5,287.65	+2,324.92	0	+14,309.97	0	*6.23	0	0	6.23
Johnston.....	+1,876.14	+11,160.01	0	0	+13,036.15	446.80	0	0	0	446.80
North Providence..	+5,127.35	+5,310.48	0	0	+10,437.83	0	3.33	0	0	3.33
Smithfield	0	0	0	0	0	0	0	0	0	0
Totals.....	+19,250.90	+23,639.04	+2,383.56	+1,403.52	+46,677.02	543.80	9.56	0	0	553.36

*2.40' of 8-inch replaced with 12-inch.

TABLE 27

PUBLIC WATER MAINS IN USE ON SEPT. 30, 1957

Diameter of Pipe	Providence*		Cranston		Johnston		N. Providence		Pawtucket		Smithfield		Total*		Providence	
	Feet	Miles	Feet	Miles	Feet	Miles	Feet	Miles	Feet	Miles	Feet	Miles	Feet	Miles	Feet	Miles
6-inch.....	1,330,248.59	289.82	596,062.44	112.89	106,018.67	20.08	138,820.41	26.29	870.98	0.16	0	0	2,372,021.09	449.25	82.06	0.02
8-inch.....	3,322,575.59	61.09	241,036.26	45.65	101,304.97	19.19	80,170.69	15.18	0	0	0	0	745,087.51	141.11	1,577.52	0.30
10-inch.....	14,083.03	2.67	0	0	0	0	0	0	0	0	0	0	14,083.03	2.67	0	0
12-inch.....	231,007.31	43.75	96,808.51	18.34	8,909.12	1.69	28,387.77	5.38	44.88	0.01	146.00	0.03	365,303.59	69.19	6,893.80	1.31
16-inch.....	85,014.00	16.10	3,511.86	0.67	663.46	0.12	0	0	0	0	0	0	89,189.32	16.89	54,865.59	10.39
20-inch.....	16,261.89	3.08	0	0	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	31,347.83	5.94	2,383.39	0.45	0	0	0	0	91,172.82	17.27	4,299.44	0.81
30-inch.....	46,120.89	8.74	29,415.62	5.57	0	0	3,733.40	0.71	0	0	0	0	79,269.91	15.01	0	0
36-inch.....	4,556.20	0.86	5,157.50	0.98	0	0	0	0	0	0	0	0	9,713.70	1.84	0	0
42-inch.....	2,902.94	0.55	22,510.12	4.26	0	0	0	0	0	0	0	0	25,413.06	4.81	0	0
48-inch.....	14,918.00	2.83	1,384.00	0.26	394.00	0.07	0	0	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	0	0	20,570.00	3.90	0	0
66-inch.....	0	0	8,448.00	1.60	0	0	0	0	0	0	0	0	8,448.00	1.60	0	0
Totals.....	2,325,453.31	440.43	1,020,441.04	193.27	252,978.05	47.91	233,495.66	48.01	915.86	0.17	146.00	0.03	3,853,429.92	729.82	67,718.41	12.83

* High Pressure Fire Service in Providence not included.

TABLE 28

GATES IN USE ON SEPT. 30, 1937

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"	Total	6"		8"	12"	Total
Providence	4933	1036	24	*662	*261	23	68	34	8	1	10	*7060	0	564	1869	2433	2	14	1	1	2	1	20	*9513
Cranston	1579	563	0	195	*10	0	11	14	6	10	3	*2391	1	675	2	678	3	5	0	2	3	13	3082	
Johnston	270	181	0	22	*8	0	4	0	0	0	1	*486	0	208	12	220	3	0	0	0	0	2	5	*711
N. Providence ..	328	150	0	64	0	0	2	0	0	0	0	544	0	247	0	247	0	3	0	0	0	0	3	794
Totals	7110	1930	24	*943	*279	23	85	48	14	11	14	*10481	1	1694	1883	3578	8	22	1	4	6	41	*14100	

Note: Above table includes all gates in the special high pressure fire system in Providence (129) and gates on Neutaconkanut Conduit and Scituate Aqueduct east of the Siphon Chamber.
 *Totals include 5-16" Rotary Plug Valves in Providence, 5-16" Rotary Plug Valves in Cranston, 5-16" Rotary Plug Valves in Johnston, and 3-12" Rotary Plug Valves in Providence.

TABLE 29
SERVICE PIPES INSTALLED, REMOVED, ETC., FOR YEAR ENDED SEPT. 30, 1957

CITY OR TOWN	INSTALLED			REMOVED - REPLACED OR ABANDONED			REPAIRED		
	General		Fire Supply	General		Fire Supply	General		Fire Supply
	Copper 3/4"-2"	Cast Iron 4"-8"	Cast Iron 4"-8"	Lead or Copper 1/2"-2"	Cast Iron 4"-8"	Cast Iron 4"-8"	Lead or Copper 1/2"-2"	Cast Iron 2"-6"	Cast Iron 4"-6"
Providence	275	6	12	90	6	1	39	3	1
Cranston	415	3	2	32	1	0	31	1	0
Johnston	*188	1	1	14	0	0	31	0	0
North Providence	164	2	0	4	0	0	18	0	0
Totals	*1042	12	15	140	7	1	119	4	1

Total number of services in the System as of Sept. 30, 1957—68,476.
 *1 service in Smithfield included.

TABLE 30
NUMBER AND SIZE OF ACTIVE SERVICES
AS OF SEPTEMBER 30, 1957

	1/2"	3/8"	3/4"	1"	1 1/4"	1 1/2"	2"	3"	4"	6"	8"	10"	12"	16"	24"	30"	Total
Providence	291	27,155	6,597	1,237	602	150	380	6	944	870	57	4	5	2	.	.	38,250
Cranston	12	7,394	6,056	602	49	132	155	.	63	60	16	.	2	.	.	.	14,541
North Providence	2	1,151	1,470	281	6	65	35	.	8	6	3	.	.	.	.	.	3,027
Johnston	2	861	1,355	180	12	28	34	.	2	11	2	.	.	.	.	.	2,687
Warwick .....	.	.....	.....	.....	.....	.....	.....	.	.....	1	.	.	2	.	.	1	4
East Smithfield .....	.	.....	.....	.....	.....	.....	.....	.	.....	.....	1	.	1	.	.	.	2
Kent County WA .....	.	.....	.....	.....	.....	.....	.....	.	.....	.....	.	.	.	1	.	.	1
Totals	307	36,561	15,678	2,300	669	375	604	6	1,017	898	79	4	10	2	1	1	58,512

TABLE 31
PUBLIC FIRE HYDRANTS

HYDRANT ACTIVITIES DURING YEAR ENDED SEPT. 30, 1957

CITY OR TOWN	Providence			Johnston	Cranston	No. Prov.	Totals
	Flush	Post	No. Prov.				
New Post Hydrant Installations.....	25		39	7		9	80
Flush Hydrants replaced with Post Hydrants.....	*30		0	1		0	*51
Post Hydrants replaced.....	*3		10	4		2	*19
Flush Hydrants removed or abandoned.....	*1		0	0		0	*1

*Includes 1 Hydrant in Special High Service Fire System.

TABLE 32

TOTAL PUBLIC HYDRANTS IN DISTRIBUTION SYSTEM ON SEPT. 30, 1957**

CITY OR TOWN	Providence*		Cranston	Johnston		No. Prov.		Totals in Providence, Cranston, Johnston & No. Prov.	
	Flush	Post		Flush	Post	Flush	Post	Flush & Post Combined	
Number in System.....	2214	941	686	7	233	244	2221	2104	4325*

*Includes 84 Flush Hydrants and 79 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 these distribution systems are not owned or maintained by the Providence Water Works.

TABLE 33
NUMBER, MAKE AND SIZE OF METERS ON ACTIVE SERVICES
AS OF SEPTEMBER 30, 1957

PROVIDENCE

MAKE	5/8"	3/4"	1"	1 1/2"	2"	3"	4"	6"	8"	10"	12"	16"	Total
Crown	149	49	12	68	23	1	4	1	.....	.....	.....	.....	307
Empire	862	44	15	125	44	1	1	.....	2	.....	.....	.....	1,094
Hersey .....	.....	.....	.....	2	3	2	14	71	6	.....	.....	.....	98
Thomson	10,386	990	427	63	133	3	4	.....	.....	.....	.....	.....	12,006
Trident	19,846	2082	614	816	1058	94	73	53	14	5	.....	.....	24,655
Venturi .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	2
TOTALS	31,243	3165	1068	1074	1261	101	96	125	22	5	.....	2	38,162

*** CRANSTON**

MAKE	5/8"	3/4"	1"	1 1/2"	2"	3"	4"	6"	8"	10"	12"	16"	Total
Crown	17	.....	.....	5	1	.....	.....	.....	.....	.....	.....	.....	23
Empire	176	4	.....	13	5	.....	.....	.....	.....	.....	.....	.....	198
Hersey .....	.....	.....	.....	1	.....	.....	.....	4	4	.....	.....	.....	9
Thomson	2,968	82	41	9	12	.....	.....	.....	.....	.....	.....	.....	3,112
Trident	10,250	495	178	142	138	2	6	9	2	1	1	.....	11,224
Venturi .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	2
TOTALS	13,411	581	219	169	157	2	6	13	6	1	3	.....	*14,568

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

*** JOHNSTON**

MAKE	5/8"	3/4"	1"	1 1/2"	2"	3"	4"	6"	8"	10"	12"	16"	Total
Crown .....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	2
Empire	2	.....	.....	3	.....	.....	.....	.....	.....	.....	.....	.....	5
Thomson	323	15	6	.....	2	.....	.....	.....	.....	.....	.....	.....	346
Trident	2,099	160	30	27	16	.....	.....	.....	1	.....	.....	.....	2,333
TOTALS	2,424	175	36	32	18	.....	.....	.....	1	.....	.....	.....	* 2,686

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

*** NORTH PROVIDENCE**

MAKE	5/8"	3/4"	1"	1 1/2"	2"	3"	4"	6"	8"	10"	12"	16"	Total
Crown .....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Empire	3	.....	.....	4	1	.....	.....	.....	.....	.....	.....	.....	8
Hersey .....	.....	.....	.....	.....	.....	.....	.....	5	.....	.....	.....	.....	5
Thomson	482	14	9	1	1	.....	.....	.....	.....	.....	.....	.....	507
Trident	2,230	167	72	20	13	1	2	3	.....	.....	1	.....	2,509
TOTALS	2,715	181	82	25	15	1	2	8	.....	.....	1	.....	* 3,030

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

TABLE 34

CONSUMPTION OF WATER — MILLION GALLONS

YEAR ENDED SEPTEMBER 30, 1957

1956-1957	LOW SERVICE*				HIGH SERVICE†				TOTAL SERVICE*†				1956-1957
	Max. Day	Min. Day	Avg. Day	Total	Max. Day	Min. Day	Avg. Day	Total	Max. Day	Min. Day	Avg. Day	Total	
Oct.	39.17	23.77	34.29	1,062.95	6.94	5.82	6.49	201.16	45.91	29.88	40.78	1,264.11	Oct.
Nov.	38.19	22.61	32.26	967.72	6.86	5.77	6.39	191.64	44.59	28.41	38.65	1,159.36	Nov.
Dec.	36.60	23.95	30.48	944.95	6.72	5.71	6.26	193.99	42.93	29.77	36.74	1,138.94	Dec.
Jan.	37.44	25.39	32.78	1,016.08	6.79	5.82	6.36	197.31	43.77	31.40	39.14	1,213.39	Jan.
Feb.	36.03	23.11	32.16	900.55	6.60	5.78	6.27	175.57	42.51	28.91	38.43	1,076.12	Feb.
Mar.	36.35	23.35	30.70	933.41	6.70	5.68	6.23	193.09	42.99	29.08	36.98	1,146.50	Mar.
Apr.	37.03	23.10	32.03	960.95	7.56	5.74	6.46	193.91	43.69	28.84	38.50	1,154.86	Apr.
May	49.59	24.14	36.67	1,186.66	11.00	5.82	7.81	242.11	60.39	30.49	44.48	1,378.77	May
June	68.91	27.36	49.39	1,481.67	15.79	7.21	11.06	331.67	84.70	34.57	60.43	1,813.34	June
July	57.77	31.41	46.72	1,448.27	14.19	7.59	10.40	322.35	70.75	39.00	57.12	1,770.62	July
Aug.	55.07	24.26	40.08	1,242.53	8.60	5.53	8.08	250.32	56.79	29.79	48.16	1,493.03	Aug.
Sept.	46.58	27.74	38.01	1,140.25	8.60	6.27	7.15	214.53	54.20	34.01	45.16	1,334.78	Sept.
For Year	68.91(a)	22.61(b)	36.32	13,255.99	15.79(c)	5.53(d)	7.42	2,707.85	84.70(e)	28.41(f)	43.74	15,963.84	For Year

(a) June 17; (b) November 11

(c) June 17; (d) August 25

(e) June 17; (f) November 11

*Includes water supplied to City of Warwick, Kent County Water Authority and to State Institutions.

†Includes water supplied to East Smithfield Water Co.

TABLE 35
WATER SOLD TO STATE INSTITUTIONS, AND CITY OF WARWICK
 YEAR ENDED SEPTEMBER 30, 1957

	STATE INSTITUTIONS				CITY OF WARWICK				Total Gallons per Month	Avg. Gallons per Day
	S.S. 50,767 Socannosset Rd. Cranston 12"x5.50" Venturi Meter	SS24,215A East St. Cranston 8" Tri-Prot. Meter	S.S. 47,269 Petta- conetti Cranston 10" Tri- Protectus Meter	S.S. 47,475 Fawtuxet Brdre Cranston 6" Tri- Comp Meter	S.S. 61,515 Oaklawn Avenue Cranston 6" Tri- Protectus Meter	S.S. 61,780 Dresden Street Cranston 6" Tri- Protectus Meter	Total Gallons per Month	Avg. Gallons per Day		
1956-1957										
Oct. . . .	35,620,000	55,425	51,393,300	890,025	3,802,425	4,189,275	60,275,025	1,944,355		
Nov. . . .	38,415,000	19,050	53,117,100	1,193,400	4,022,475	4,501,050	62,834,025	2,094,467		
Dec. . . .	36,124,000	16,350	47,885,200	1,063,350	3,686,350	3,983,925	56,619,025	1,826,420		
Jan. . . .	35,213,000	65,925	47,263,500	0	3,329,475	3,737,475	54,330,450	1,752,595		
Feb. . . .	35,706,000	31,800	47,019,100	0	3,349,500	3,915,900	54,284,500	1,938,732		
Mar. . . .	38,740,000	38,400	50,545,700	0	4,058,475	4,760,025	59,364,200	1,914,974		
Apr. . . .	37,022,000	267,525	55,006,700	2,602,950	4,066,125	5,468,400	67,144,175	2,238,139		
May. . . .	42,561,000	55,275	102,309,400	2,602,950	11,411,475	24,393,375	140,717,200	4,539,265		
June. . . .	39,913,000	52,875	131,816,135	2,602,950	17,395,125	39,460,425	191,274,635	6,375,821		
July. . . .	38,197,000	23,925	170,958,500	3,392,250	15,224,550	34,578,000	174,153,300	5,617,848		
Aug. . . .	37,161,000	65,175	84,294,900	2,049,375	8,136,150	17,203,125	111,683,550	3,602,695		
Sept. . . .	41,459,000	50,325	77,983,500	2,049,375	6,111,900	12,578,625	98,723,400	3,290,780		
For Year	456,131,000	742,050	869,593,035	18,446,625	84,594,225	158,769,600	1,131,403,485	3,099,735		

TABLE 36
WATER SOLD TO EAST SMITHFIELD WATER COMPANY AND
KENT COUNTY WATER AUTHORITY
YEAR ENDED SEPTEMBER 30, 1937

1936- 1937	EAST SMITHFIELD WATER CO.				KENT COUNTY WATER AUTH.			
	S.S. 51,198 Waterman St. No. Prov.	S.S. 52,403 Dean Ave. Smithfield	Total Gallons per Month	Avg. Gallons per Day	S.S. 58,985 Oaklawn Ave. Cranston	S.S. 60,757 Purification Works Scituate	Total Gallons per Month	Avg. Gallons per Day
	12" Tri-Crest Meter	8" Tri-Crest Meter			12" Tri-Crest Meter	12" Venturi Meter		
	Gallons per Month	Gallons per Month	Gallons per Month	Gallons per Month				
Oct. ..	3,809,250	3,591,000	7,400,250	238,717	4,279,500	16,680,000	20,959,500	676,112
Nov. ..	4,684,500	3,061,500	7,746,000	258,200	4,722,000	15,319,000	20,041,000	668,033
Dec. ..	4,355,250	3,000,750	7,356,000	237,290	3,752,250	15,090,000	18,842,250	607,814
Jan. ..	4,413,750	2,767,500	7,181,250	231,653	3,969,000	15,053,000	19,022,000	613,612
Feb. ..	4,461,000	2,741,250	7,202,250	257,223	3,753,000	12,874,000	16,627,000	593,821
Mar. ..	4,168,500	2,956,500	7,125,000	229,838	3,451,500	12,374,000	15,825,500	510,500
Apr. ..	4,286,250	2,956,500	7,242,750	241,425	3,826,500	11,975,000	15,801,500	526,716
May ..	4,035,000	4,779,750	8,814,750	284,346	7,271,250	17,400,000	24,671,250	795,846
June ..	4,590,000	4,447,500	9,037,500	301,250	9,302,250	29,977,000	39,279,250	1,309,308
July ..	5,193,000	4,443,750	9,636,750	310,862	8,850,000	36,478,000	45,328,000	1,462,193
Aug. ..	4,787,250	3,524,250	8,311,500	268,112	5,397,750	29,697,000	35,094,750	1,132,088
Sept. ..	5,535,000	3,473,250	9,008,250	300,275	5,103,750	31,600,000	36,703,750	1,223,458
For Year	54,318,750	41,743,500	96,062,250	263,184	63,678,750	244,517,000	308,195,750	844,371

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

Year Ending Sept. 30	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
1877.....	.....	.....	.....	2.27	2.26	1.84	2.25	2.53	2.94	2.91	2.76	3.01	2.53†
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	2.95	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	9.00	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	23.70	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	35.35	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	36.10	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
1953.....	37.09	35.75	35.27	34.59	33.95	34.20	34.61	35.63	50.68	46.76	43.63	43.95	38.86
1954.....	38.20	35.43	35.03	34.85	35.63	35.31	35.10	35.05	45.09	45.27	40.72	39.22	37.92
1955.....	39.84	37.82	37.17	37.24	38.42	37.85	37.00	41.54	44.52	49.90	47.08	42.25	40.91
1956.....	40.29	38.30	38.18	38.42	39.31	38.37	38.55	40.08	49.50	44.93	48.86	41.70	41.38
1957.....	40.78	38.65	36.74	39.14	38.43	36.98	38.50	44.48	60.45	57.12	48.16	45.16	43.74

†Average for 9 months

TABLE 38
FINANCIAL STATEMENT OF THE PROVIDENCE
WATER SUPPLY BOARD FOR THE YEAR
ENDED SEPT. 30, 1957

REVENUE

Water Rents	†\$2,262,879.80
Hydrant Rental	78,881.11
Electric Power	8,201.25
Setting Meters	6,094.50
Repairing Meters	2,069.96
Rents from Non-Operating Property	1,129.37
Repairs to Water Services	1,024.26
Repairs to Distribution Mains	3,309.08
Repairs to Hydrants	343.67
Installation of New Fire Supplies	5,331.00
Installation of New Water Services	58,428.36
Installation of New Water Mains	133,986.18
Revolving Fund—Water Meters	16,595.94
Sale of Scrap Iron, Brass, Lead, Etc.	6,203.60
Sale of Lumber, Pulpwood, Etc.	364.43
Sale of Obsolete Equipment ..	89.00
Sundries	896.91
Total Revenue	\$2,585,828.42

DISBURSEMENTS

Operating Expense:	
Salaries	\$645,500.06
Services Other Than Personal	105,104.96
Materials and Supplies	224,566.34
Special Items	8,680.50
Capital Outlay	75,147.81
Other Structures and Improvements (Water Main Extensions)	230,000.00
Total Operating Expense	*\$1,288,999.67
Taxes	228,086.75
Interest on Bonds	570,000.00
Employees' Retirement System	50,462.00
Social Security F.O.A.S.I.	13,206.98
Depreciation and Extension Fund	200,000.00
Payable to Sinking Fund	** 235,073.02
Total Disbursements	\$2,585,828.42
Gross Water Rents	\$2,329,010.32
Minus Refunds (Current Year)	66,130.52
Net Water Rents	†\$2,262,879.80

*See Table 39 for detailed account of Operating Expense.

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

TABLE 39
WATER SUPPLY BOARD OPERATING EXPENSES
FOR THE YEAR ENDED SEPT. 30, 1957

ADMINISTRATIVE

Salaries:

001	Officials	\$18,547.56
	Clerical—Chief Engineer's Office	3,167.77
	Clerical—Accounting	33,935.46
	Engineering	46,117.77
	Labor—General	8,474.40
008	Sick Leave Payrolls	2,327.55
009	Vacation Payrolls	4,329.52
	Total	\$116,900.03

Services Other Than Personal:

109	Fees Not Otherwise Classified	\$ 14.00
111	Telephone and Telegraph	1,800.00
112	Postage, Freight and Express	245.33
116	Transportation of Persons—Other	46.28
117	Travel Subsistence—Conventions	10.50
118	Travel Subsistence—Other	91.76
121	Printing, Binding and Reproduction Services	1,150.98
122	Advertising	247.80
131	Light and Power	1,532.29
141	Repairs—Office Machinery	208.70
142	Repairs—Automobiles	322.11
146	Repairs—Plant Equipment	147.88
149	Repairs—Other Equipment	9.75
150	Repairs—Structures and Improvements	379.48
151	Maintenance and Servicing	177.65
181	Laundry and Cleaning	125.00
183	Dues and Subscriptions	250.70
199	Miscellaneous Services	7,541.38
	Total	\$14,301.59
	Outstanding Commitments	10.00
	Total—Services Other Than Personal	\$ 14,311.59

Materials and Supplies:

201	Stationery and Office Supplies	\$ 1,080.70
204	Wearing Apparel and Personal Supplies ..	3.23
211	Motor Fuel	602.64
212	Lubricants	1.64
213	Tires and Tubes	4.94
214	Repair Parts and Supplies—Trucks and Autos ..	21.54
221	Repair Parts and Supplies—Office Machinery ..	4.06
231	Medical, Chemical and Laboratory Supplies ..	35.62
241	Fuel	1,057.12
244	Housekeeping Supplies and Minor Equipment ..	260.86
252	Seeds, Fertilizer, Trees and Shrubs	92.55
267	Paint and Painters' Supplies	66.30
299	Miscellaneous Materials and Supplies	258.18
	Total	\$ 3,489.38
	Outstanding Commitments	92.19
	Total—Materials and Supplies	\$ 3,581.57

Special Items:

350	Blue Cross and Physicians Service	\$ 1,353.40
	Total	\$ 1,353.40

Capital Outlay:

501 Office Furniture, Machinery and Equipment	\$ 1,232.40
502 Books, Maps and Charts	131.27
511 Automobiles	4,688.92
Total	\$ 6,052.59
Outstanding Commitments	22,692.73
Total—Capital Outlay	\$ 28,745.32

Total—Administrative\$164,891.91

SOURCE OF SUPPLY

Hydro Electric Station:

Salaries:

001 Labor—Operation	\$ 4,692.14
Repairs—Structures and Improvements	37.24
Repairs—Machinery and Equipment	571.77
Total	\$ 5,301.15

Services Other Than Personal:

111 Telephone and Telegraph	\$ 157.28
142 Repairs—Trucks and Autos	35.35
146 Repairs—Plant Equipment	4,640.00
151 Repairs—Machinery and Equipment	310.00
199 Miscellaneous Services	6.05
Total	\$ 5,148.68

Materials and Supplies:

201 Stationery and Office Supplies	\$ 63.33
202 Small Tools and Shop Supplies	29.40
212 Lubricants	43.61
214 Repair Parts and Supplies—Trucks and Autos	3.90
222 Repair Parts and Supplies—Plant Equipment	751.35
241 Fuel	245.00
265 Fabricated Metal Products	600.00
267 Paint and Painters' Supplies	28.27
272 Valves and Fittings	57.27
Total	\$ 1,822.13

Water Purification Plant:

Salaries:

001 Supervision	\$ 14,053.55
Labor—Operation	33,727.77
Technical	18,913.21
Clerical—Laboratory	1,176.00
Repairs—Structures and Improvements	606.89
Repairs—Machinery and Equipment	6,135.21
Repairs—Care of Grounds	1,991.57
Total	\$ 76,604.20

Services Other Than Personal:

102 Expert Consultant and Other Service Fees	\$ 3.00
111 Telephone and Telegraph	961.97
112 Postage, Freight and Express	113.98
115 Transportation Persons—Conventions	2.90
117 Travel Subsistence—Conventions	2.50
141 Repairs—Office Machinery	37.85
142 Repairs—Trucks and Autos	80.47
146 Repairs—Plant Equipment	3,816.04
150 Repairs—Structures and Improvements	14,595.00
151 Maintenance and Servicing	1,529.91
159 Repairs—Other Structures	125.00
181 Laundry and Cleaning	228.54
183 Dues and Subscriptions	4.25
199 Miscellaneous Services	460.04
Total	\$ 21,961.45

Materials and Supplies:

201	Stationery and Office Supplies	\$ 485.06
202	Small Tools and Shop Supplies	487.45
204	Wearing Apparel and Personal Supplies	128.18
212	Lubricants	132.32
214	Repair Parts and Supplies—Trucks and Autos	62.43
222	Repair Parts and Supplies—Plant Equipment	2,357.17
229	Repair Parts and Supplies—Other Equipment	208.14
231	Ferric Sulphate	38,369.41
231	Lime	14,852.04
231	Chlorine	3,675.00
231	Sodium Silico Fluoride	14,874.00
231	Miscellaneous Chemical Supplies	96.65
231	Miscellaneous Laboratory Supplies	806.51
241	Fuel	5,299.28
244	Housekeeping Supplies	462.52
252	Seeds, Fertilizer, Trees and Shrubs	135.00
259	Other Agricultural, Horticultural and Land- scaping Supplies	91.20
261	Gravel, Sand and Stone	43.60
262	Cement, Plaster and Related Products	81.03
265	Fabricated Metal Products	499.25
266	Lumber and Hardware	460.17
267	Paint and Painters' Supplies	119.52
268	Plumbing and Electrical Supplies	2,541.70
271	Pipe	212.74
272	Valves and Fittings	155.64
299	Miscellaneous Materials and Supplies	324.04
	Total	\$ 86,960.05

Special Items:

302	Liability Insurance	\$ 40.75
	Total	\$ 40.75

Capital Outlay:

501	Office Furniture, Machinery and Equipment	\$ 493.25
502	Books, Maps and Charts	14.37
541	Laboratory Equipment	522.27
561	Shop and Plant Equipment	5,635.28
591	Equipment Not Otherwise Classified	4,395.00
	Total	\$ 11,060.17

Situate Reservoir:

Salaries:

001	Labor—Operation	\$ 2,891.74
	Repairs—Structures and Improvements	98.80
	Repairs—Care of Grounds	1,399.20
	Total	\$ 4,389.74

Services Other Than Personal:

111	Telephone and Telegraph	\$ 244.77
142	Repairs—Trucks and Autos	211.60
	Total	\$ 456.37

Capital Outlay:

511	Trucks and Autos	\$ 962.68
	Total	\$ 962.68

Materials and Supplies:

214	Repair Parts and Supplies—Trucks and Autos	\$ 8.76
252	Seeds, Fertilizer, Trees and Shrubs	434.00
	Total	\$ 442.76

Other Reservoirs:**Salaries:**

001 Labor—Operation	\$ 3,049.03	
Repairs—Structures and Improvements	89.11	
Repairs—Care of Grounds	76.50	
Total	\$	3,214.64

Services Other Than Personal:

142 Repairs—Trucks and Autos	\$ 7.00	
Total	\$	7.00

Materials and Supplies:

213 Tires and Tubes	\$ 174.06	
214 Repair Parts and Supplies—Trucks and Autos	85.85	
Total	\$	259.91

Capital Outlay:

511 Trucks and Autos	\$ 962.68	
Total	\$	962.68

Reforestation:**Salaries:**

001 Supervision	\$ 4,514.00	
Labor—Operation	1,935.40	
Repairs—Structures and Improvements	96.80	
Repairs—Machinery and Equipment	146.00	
Repairs—Care of Grounds	11,633.30	
Total	\$	18,325.50

Services Other Than Personal:

102 Expert Consultant and Other Service Fees ..	\$ 45.00	
112 Postage, Freight and Express	48.16	
142 Repairs—Trucks and Autos	19.71	
143 Repairs—Construction and Other Automotive Equipment	50.42	
146 Repairs—Plant Equipment	12.88	
183 Dues and Subscriptions	7.50	
199 Miscellaneous Services	23.07	
Total	\$	206.74

Materials and Supplies:

202 Small Tools and Shop Supplies	\$ 70.64	
213 Tires and Tubes	73.12	
214 Repair Parts and Supplies—Trucks and Autos	35.49	
241 Fuel	396.80	
252 Seeds, Fertilizer, Trees and Shrubs	420.00	
259 Other Agricultural, Horticultural and Land- scaping Supplies	243.43	
260 Loam	450.00	
Total	\$	1,689.48

Real Estate:**Materials and Supplies:**

261 Gravel, Sand and Stone	\$ 10.00	
Total	\$	10.00

General:**Salaries:**

001 Clerical	\$ 889.20	
Labor—Operation	2,002.15	
Repairs—Structures and Improvements	511.00	
Repairs—Machinery and Equipment	367.35	
Repairs—Care of Grounds	4,352.62	

Repairs—Care of Grounds—Rockland Cemetery		539.10
008	Sick Leave Payrolls	5,646.50
009	Vacation Payrolls	5,073.72
025	Injured Employees' Payrolls	41.60
Total		\$ 19,423.24

Services Other Than Personal:

109	Fees Not Otherwise Classified	\$ 26.00
142	Repairs—Trucks and Autos	554.26
143	Repairs—Construction and Other Automotive Equipment	83.98
149	Repairs—Other Equipment	123.99
199	Miscellaneous Services	775.00
Total		\$ 1,563.23

Materials and Supplies:

202	Small Tools and Shop Supplies	\$ 294.79
204	Wearing Apparel and Personal Supplies	2.89
211	Motor Fuel	1,281.16
214	Repair Parts and Supplies—Trucks and Autos	451.47
222	Repair Parts and Supplies—Plant Equipment	43.81
231	Medical, Chemical and Laboratory Supplies	138.60
244	Housekeeping Supplies and Minor Equipment	44.59
252	Seeds, Fertilizer, Trees and Shrubs	42.63
259	Other Agricultural, Horticultural and Landscaping Supplies	297.72
261	Gravel, Sand and Stone	81.90
262	Cement, Plaster and Related Products	37.24
265	Fabricated Metal Products	9.74
266	Lumber and Hardware	125.07
267	Paint and Painters' Supplies	54.88
268	Plumbing and Electrical Supplies	75
299	Miscellaneous Materials and Supplies	28.44
Total		\$ 2,935.68

Special Items:

350	Blue Cross and Physicians Service	\$ 1,514.20
Total		\$ 1,514.20
Outstanding Commitments—Services Other Than Personal		50.00
Outstanding Commitments—Materials and Supplies		2,938.09
Outstanding Commitments—Capital Outlay		15,077.50
Total—Source of Supply		\$283,328.02

TRANSMISSION AND DISTRIBUTION

Pumping Station:

Salaries:

001	Labor—Operation	\$14,305.20
Total		\$ 14,305.20

Services Other Than Personal:

111	Telephone and Telegraph	\$ 344.62
121	Printing and Binding	4.20
131	Light and Power	19,308.78
146	Repairs—Plant Equipment	105.96
181	Laundry and Cleaning	36.00
199	Miscellaneous Services	18.00
Total		\$ 19,817.56

Materials and Supplies:

201	Stationery and Office Supplies.....	\$ 60.68
211	Motor Fuel	205.84
214	Repair Parts and Supplies—Trucks and Autos	82.60
222	Repair Parts and Supplies—Plant Equipment	400.32
241	Fuel	680.39
244	Housekeeping Supplies and Minor Equipment	13.27
268	Plumbing and Electrical Supplies.....	20.00
271	Pipe	17.29
272	Valves and Fittings.....	31.13
Total		\$ 1,511.52

Pipe Lines:

Salaries:

001	Supervision	\$ 6,827.20
	Clerical	5,617.35
	Labor—Operation	82,858.66
	Repairs—Structures and Improvements.....	2.60
	Repairs—Trucks and Autos.....	6,895.28
	Repairs—Care of Grounds.....	8,404.78
	Repairs—Transmission Mains	1,193.23
	Repairs—Distribution Mains	9,731.28
	Repairs—Gates and Valves.....	10,427.02
	Repairs—Hydrants	5,439.04
	Repairs—Services	16,952.84
	New Work—Distribution Mains	372.61
	New Work—Gates and Valves.....	4,943.22
	New Work—Hydrants	6,985.76
	New Work—Services	47,918.35
	New Work—Meters (Emergency)	42.71
	Retirement Work—Transmission Mains	244.95
	Retirement Work—Distribution Mains	171.07
	Retirement Work—Gates and Valves.....	1,789.34
	Retirement Work—Hydrants	3,627.23
	Retirement Work—Services	3,314.04
Total		\$224,258.56

Services Other Than Personal:

102	Expert Consultant and Other Service Fees..	\$ 248.00
109	Fees Not Otherwise Classified.....	39.00
111	Telephone and Telegraph.....	3,835.88
112	Postage, Freight and Express.....	96.31
121	Printing and Binding.....	1.68
131	Light and Power.....	426.89
141	Repairs—Office Machinery	28.37
142	Repairs—Trucks and Autos.....	1,586.96
143	Repairs—Construction and Other Automotive Equipment	172.62
153	Repairs—Street Openings	3,759.96
162	Rental—Automotive and Construction Equip- ment	115.51
163	Rental—Other Equipment	49.60
165	Rental of Land	259.00
199	Miscellaneous Services	3,400.72
Total		\$ 14,020.50

Materials and Supplies:

201	Stationery and Office Supplies.....	\$ 494.47
202	Small Tools and Shop Supplies.....	2,473.79
204	Wearing Apparel and Personal Supplies.....	397.22
211	Motor Fuel	3,429.56
212	Lubricants	347.01
213	Tires and Tubes.....	352.32
214	Repair Parts and Supplies—Trucks and Autos	2,683.22
222	Repair Parts and Supplies—Plant Equipment	4.75
229	Repair Parts and Supplies—Other Equipment	62.00
231	Medical, Chemical and Laboratory Supplies	168.03
241	Fuel	1,103.36
244	Housekeeping Supplies and Minor Equipment	243.04
261	Gravel, Sand and Stone	230.94
262	Cement Plaster and Related Products	291.06
264	Fabricated Cement Products	53.90

266	Lumber and Hardware	537.22	
268	Plumbing and Electrical Supplies	2,492.78	
271	Pipe—Cast Iron	1,419.10	
271	Pipe—Service	10,076.92	
271	Pipe—Other	46.10	
272	Hydrants, Valves and Fittings	64,854.82	
272	Gates and Valves	11,922.68	
273	Special Castings	611.40	
279	Water System Materials and Supplies Not Otherwise Classified	6.17	
299	Miscellaneous Materials and Supplies	491.63	
	Total		\$104,793.49
Special Items:			
331	Payment of Claims and Damages	\$ 517.05	
	Total		\$ 517.05
Capital Outlay:			
511	Trucks and Autos	\$ 1,219.96	
512	Trucks and Tractors	13,156.70	
521	Construction and Engineering Equipment	1,267.30	
561	Shop and Plant Equipment	228.83	
	Total		\$ 15,872.79
Other Structures and Improvements:			
721	New Main Extensions	\$203,392.46	
	Total		\$203,392.46
Distribution Reservoirs:			
Services Other Than Personal:			
111	Telephone and Telegraph	\$ 120.00	
131	Light and Power	27.40	
151	Maintenance and Servicing	115.06	
	Total		\$ 262.46
General:			
Salaries:			
001	Labor—Operation	\$ 6,708.40	
	Repairs—Machinery and Equipment	1,443.95	
	Repairs—Trucks and Autos	2,218.80	
008	Sick Leave Payrolls	8,239.65	
009	Vacation Payrolls	7,742.75	
025	Injured Employees' Payrolls	2,156.72	
	Total		\$ 28,510.27
Services Other Than Personal:			
181	Laundry and Cleaning	\$ 75.00	
183	Dues and Subscriptions	5.00	
199	Miscellaneous Services	36.00	
	Total		\$ 116.00
Materials and Supplies:			
266	Lumber and Hardware	\$ 50.63	
268	Plumbing and Electrical Supplies	163.50	
	Total		\$ 214.13
Special Items:			
350	Blue Cross and Physicians Service	\$ 3,122.20	
	Total		\$ 3,122.20
	Outstanding Commitments—Materials and Supplies	\$ 1,903.66	
	Outstanding Commitments—Capital Outlay	1,768.67	
	Outstanding Commitments—New Main Extensions	26,607.54	
	Total—Transmission and Distribution		\$660,994.06

METERING

Salaries:

001	Supervision	\$11,409.98
	Clerical	41,869.98
	Labor—Operation	30,764.20
	Repairing Meters	10,515.81
	Removing and Setting Meters	12,857.53
	Testing Meters	3,093.76
	Inspection—Services	3,178.50
	General Operation	10,139.68
008	Sick Leave Payrolls	4,556.07
009	Vacation Payrolls	5,460.22
025	Injured Employees' Payrolls	421.80
	Total	\$134,267.53

Services Other Than Personal:

102	Expert Consultant and Other Service Fees ..	\$ 78.00
109	Fees Not Otherwise Classified	20.00
111	Telephone and Telegraph	2,300.00
112	Postage, Freight and Express	545.03
116	Transportation of Persons—Carfares	635.20
131	Light and Power	1,500.00
141	Repairs—Office Machinery, Furniture and Furnishings	728.74
142	Repairs—Trucks and Autos	1,015.76
181	Laundry and Cleaning	100.00
199	Miscellaneous Services	20,260.65
	Total	\$ 27,183.38

Materials and Supplies:

201	Stationery and Office Supplies	\$ 3,064.69
202	Small Tools and Shop Supplies	342.84
204	Wearing Apparel and Personal Supplies	322.81
211	Motor Fuel	1,263.90
212	Lubricants	215.95
213	Tires and Tubes	573.58
214	Repair Parts and Supplies—Trucks and Autos	535.94
229	Repair Parts and Supplies—Other Equipment	143.70
231	Medical, Chemical and Laboratory Supplies	92.57
241	Fuel	737.93
244	Housekeeping Supplies and Minor Equipment	73.02
259	Other Agricultural, Horticultural and Land- scaping Supplies	5.29
267	Paint and Painters' Supplies	8.27
268	Plumbing and Electrical Supplies	484.50
272	Valves and Fittings	308.52
274	Meter Parts	6,288.36
	Total	\$ 14,461.87

Special Items:

331	Payment of Claims and Damages	\$ 129.60
350	Blue Cross and Physicians Service	2,003.30
	Total	\$ 2,132.90

Capital Outlay:

501	Office Furniture, Machinery and Equipment ..	\$ 668.00
	Total	\$ 668.00

Outstanding Commitments—Materials and Supplies	\$ 1,042.00
Outstanding Commitments—Capital Outlay	30.00

Total—Metering **\$179,785.68**

TOTAL—OPERATING EXPENSE **\$1,288,999.67**

TABLE 40
STATEMENT OF REVENUE—ESTIMATED AND ACTUAL
FOR THE YEAR ENDED SEPTEMBER 30, 1957

Account	Estimated Revenue	Actual Revenue
Water Rents	\$2,175,000.00	\$2,262,879.80
Hydrant Rental	74,000.00	78,881.11
Electricity.	40,000.00	8,201.25
Stores Account (Meters).....	6,000.00	16,595.94
Repairing and Setting Meters.....	7,000.00	8,164.46
Fire Supplies and Miscellaneous Repairs	10,000.00	10,008.01
New Service Installations.....	50,000.00	58,428.36
New Main Extensions.....	125,000.00	133,986.18
Rentals.	1,000.00	1,129.37
Other miscellaneous Receipts.....	12,000.00	7,553.94
Total.....	\$2,500,000.00	\$2,585,828.42

TABLE 41
SUMMARY OF ANNUAL WATER WORKS REVENUES
1930-1957

Fiscal Years Ended Sept. 30	Receipts From Sale of Water	Misc. Receipts	Total
1930.....	\$1,384,369.54	\$218,844.87	\$1,603,214.41
1931.....	1,414,836.00	237,172.64	1,652,008.64
1932.....	1,375,450.77	223,058.31	1,598,509.08
1933.....	1,345,444.69	212,066.79	1,557,511.48
1934.....	1,387,876.73	184,133.47	1,572,010.20
1935.....	1,409,269.47	237,518.68	1,646,788.15
1936.....	1,427,881.10	265,357.71	1,693,238.81
1937.....	1,429,107.08	229,317.39	1,721,424.47
1938.....	1,426,986.49	106,359.70	1,533,346.19
1939.....	1,491,918.63	124,901.37	1,616,820.00
1940.....	1,551,917.24	115,540.98	1,667,458.22
1941.....	1,615,351.79	114,960.58	1,730,312.37
1942.....	1,679,058.50	103,368.22	1,782,426.72
1943.....	1,629,268.35	86,580.98	1,715,849.33
1944.....	1,761,016.12	87,946.71	1,848,962.83
1945.....	1,812,311.82	99,271.44	1,911,583.26
1946.....	1,808,993.17	123,247.90	1,932,241.07
1947.....	1,877,471.18	124,372.47	2,001,843.65
1948.....	2,005,242.58	222,419.41	2,227,661.99
1949.....	2,031,633.37	229,317.72	2,260,951.09
1950.....	2,082,814.82	199,061.80	2,281,876.62
1951.....	2,078,209.84	214,868.70	2,293,078.54
1952.....	2,053,427.76	322,761.07	2,376,188.83
1953.....	2,093,625.85	343,477.25	2,437,103.08
1954.....	2,146,947.18	302,707.38	2,449,654.56
1955.....	2,166,180.84	379,010.13	2,545,190.97
1956.....	2,236,331.86	371,715.61	2,608,047.47
1957.....	2,262,879.80	322,948.62	2,585,828.42

TABLE 42

STATEMENT OF WATER WORKS
DEPRECIATION AND EXTENSION FUND

	Investment	Cash	Due From Other Funds	Total
Balance Sept. 30, 1956.....	\$ 757,000.00	\$207,389.18	\$200,000.00	\$1,164,389.18
Increase During Year Ended Sept. 30, 1957	308,000.00			
Disbursements During Year Ended Sept. 30, 1957.....		193,091.12	200,000.00	
Accounts Receivable Year Ended Sept. 30, 1957.....			200,000.00	
Accounts Payable Year Ended Sept. 30, 1957.....			85,000.00	
Balance Sept. 30, 1957.....	\$1,065,000.00	\$ 14,298.06	\$115,000.00	\$1,194,298.06

TABLE 43

STATEMENT OF WATER WORKS
DEPOSIT AND REFUND ACCOUNT

Cash Balance Sept. 30, 1956	\$28,219.00
Receipts for Year Ended Sept. 30, 1957	Nil
Total Available	\$28,219.00
Disbursements for Year Ended Sept. 30, 1957	\$ 6,081.00
Accounts Payable for Year Ended Sept. 30, 1957	Nil
Total Disbursements	6,081.00
Cash Balance Sept. 30, 1957	\$22,138.00

TABLE 44

STATEMENT OF WATER SUPPLY BOARD BONDS OUTSTANDING
AND SINKING FUND REQUIREMENTS ON A 3% BASIS
AS OF SEPTEMBER 30, 1957

Bonds Payable from Sinking Fund	Rate of Int. %	Year of		Bonds		Sinking Fund Requirements On a 3% Basis
		Issue	Maturity	Issued	Outstanding	
Water Supply	4½	1922	1962	\$1,000,000.00	\$1,000,000.00	\$ 817,908.52
" "	4	1922	1962	2,000,000.00	2,000,000.00	1,623,788.99
" "	4	1932	1962	1,000,000.00	1,000,000.00	772,094.36
" "	4	1922	1962	2,500,000.00	2,500,000.00	1,961,951.32
" "	4½	1924	1964	2,000,000.00	2,000,000.00	1,490,145.05
" "	4	1924	1964	1,500,000.00	1,500,000.00	1,075,801.32
" "	4	1925	1965	2,500,000.00	2,500,000.00	1,753,834.68
" "	4	1928	1968	1,500,000.00	1,500,000.00	919,650.05
Total Water Supply Debt and Sinking Fund Requirements.....					\$14,000,000.00	\$10,415,174.29
Sinking Fund Assets Allocated to Water Supply Debt per City Controller's Report on Sinking Fund Sept. 30, 1957 (Includes \$235,073.02* Water Operating Balance for Year Ended Sept. 30, 1957 plus Prior Year Adjustments of \$4,476.99 or a total of \$239,550.01).....						\$10,413,449.75

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

TABLE 45

A SUMMARY OF INVENTORIES OF
PERSONAL PROPERTY
AT SEPTEMBER 30, 1957

REMOVABLE PROPERTY INVENTORY	\$127,285.71
SOURCE OF SUPPLY:	
Hydro-Electric Station	\$ 10,672.40
Purification Works	23,164.89
Laboratory	4,857.73
General	3,403.47
	42,098.49
TRANSMISSION AND DISTRIBUTION:	
Pipe Lines	\$115,384.45
Pumping Stations	318.14
Garage	5,916.31
	121,618.90
METERING:	40,175.57
SUPPLIES:	2,251.22
Total Personal Property Inventory	\$333,429.89

TABLE 46

**STATEMENT OF STORES REVOLVING FUND
FOR THE YEAR ENDED SEPT. 30, 1957**

Cash Balance Sept. 30, 1956	\$10,000.00
Outstanding Commitments Sept. 30, 1956	20,818.20
Receipts—Oct. 1, 1956 to Sept. 30, 1957	55,751.95
Total Available	\$86,570.15
Disbursements Sept. 30, 1957	\$50,218.09
Outstanding Commitments Sept. 30, 1957	9,756.12
Transferred as Income to General Fund	16,595.94
Total Disbursements	76,570.15
Cash Balance Sept. 30, 1957	\$10,000.00

TABLE 47

**STATEMENT OF THE TRANSMISSION AND
DISTRIBUTION REVOLVING FUND FOR
THE YEAR ENDED SEPT. 30, 1957**

Transfer From Transmission and Distribution Division Sept. 26, 1956.....	\$5,000.00
Receipts Oct. 1, 1956 to Sept. 30, 1957	3,978.58
Total Available	\$8,978.58
Disbursements Sept. 30, 1957	\$3,812.53
Outstanding Commitments Sept. 30, 1957	Nil
Total Disbursements	\$3,812.53
Cash Balance Sept. 30, 1957	\$5,166.05

TABLE 48

RELOCATION OF MAIN-BRANCH AVENUE
RAILROAD CROSSING ACCOUNT FOR THE
YEAR ENDED SEPT. 30, 1957

Transferred From Depreciation and Extension Fund	\$90,000.00
Disbursements Sept. 30, 1957	\$81,985.27
Outstanding Commitments Sept. 30, 1957	Nil
Total Disbursements	<u>81,985.27</u>
Cash Balance Sept. 30, 1957	\$ 8,014.73

TABLE 49

STATEMENT OF THE MISCELLANEOUS WATER
MAIN EXTENSIONS ACCOUNT FOR
THE YEAR ENDED SEPT. 30, 1957

Transferred From Depreciation and Extension Fund	\$15,000.00
Disbursements Sept. 30, 1957	\$7,794.56
Outstanding Commitments Sept. 30, 1957	Nil
Total Disbursements	<u>7,794.56</u>
Cash Balance Sept. 30, 1957	\$ 7,205.44

TABLE 50

WATER WORKS PROPERTY IN THE VARIOUS CITIES AND TOWNS
(VALUATIONS AS OF DECEMBER 31, 1955)

LOCATION OF PROPERTY	LAND AREA (ACRES)	VALUATIONS						Tax
		DECLARED		ASSESSED		Total	Total	
		Land	Bldgs. & Imp.	Land	Bldgs. & Imp.			
City of Providence.....	3.03	.....	.....	\$ 350,580.00(a)	\$ 324,200.00	\$ 350,580.00	.....
City of Warwick.....	0.06	.....	.....	160,000.00(b)	0	160,000.00	.....
City of Cranston.....	79.43	.....	.....	897,630.00(c)	941,000.00	961,920.00(c)	28,857.60
Town of Foster.....	1,936.04	\$39,560.00	\$2,600.00	33,160.00	0	109,000.00	2,398.00	
Town of Gloucester.....	73.30	11,020.00	0	11,020.00	0	11,020.00	318.27	
Town of Johnston.....	103.13	.....	.....	331,000.00(d)	292,670.00	331,000.00	7,758.50
Town of North Providence.....	8.58	.....	.....	173,000.00(e)	0	173,000.00(e)	4,795.00
Town of Scituate.....	13,182.24	.....	.....	6,790,000.00(f)	6,183,000.00	6,790,000.00(f)	183,330.00
Total Real Estate.....	15,385.81	.....	.....	\$ 8,588,550.00	\$7,740,870.00	\$8,728,680.00	\$227,479.37
Water Distribution System.....	.....	.....	.....	8,706,981.71	.....	.....	.....
Total.....	15,385.81	.....	.....	\$17,295,531.71	\$7,740,870.00	\$8,728,680.00	\$227,479.37

(a) Providence—Assessed Valuation.
 (b) Warwick—Assessed Valuation.
 (c) Cranston—Assessed Valuation (\$150,000.00 exemption not included).
 (d) Johnston—Assessed Valuation.
 (e) North Providence—Valuation as per agreement dated March 3, 1953.
 (f) Scituate—Valuation as per agreement dated June 9, 1951.

TABLE 51
SUMMARY OF STATISTICS
PROVIDENCE WATER SUPPLY BOARD
FOR THE YEAR ENDED SEPT. 30, 1957

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

GENERAL STATISTICS

Population of Providence	234,550
Estimated population supplied in suburbs	160,100
Total population supplied	394,650
Date of Construction.....	1870-76; 1915-28; 1935; 1938-40; 1954
By whom owned	City of Providence
Source of Supply.....	Surface water collected in Scituate Reservoir and five smaller reservoirs on north branch of Pawtuxet River.
Available Storage Capacity of six impounding reservoirs.....	39,746 m.g.
Mode of supply.....	83.0% by gravity; 17.0% by pumping

STATISTICS OF CONSUMPTION OF WATER

1. Estimated population supplied	394,650
2. Total raw water influent for the year, gallons	17,184,040,000
3. Average daily raw water influent, gallons	47,080,000
4. Raw water consumption per capita, gallons daily	119.3
5. Total consumption for the year, gallons	15,963,825,000
6. Passed through meters, gallons	14,197,623,000
7. Percentage of consumption metered	88.94%
8. Average daily consumption, gallons	43,736,507
9. Per capita consumption, gallons daily	110.8
10. Gallons per day to each tap	747
11. Cost of supplying water, per million gallons, based on total maintenance	\$48.32
12. Cost of supplying water, per million gallons, total maintenance plus fixed charges	\$114.83

FILTRATION

1. Type of filters	Rapid Sand
2. Number of filter units	14
3. Capacity of filter plant	14 units @ 7.5=105 m.g.d.
4. Chemicals used	Ferri-Floc, Quicklime, Chlorine and Sod. Silicofluoride
5. Total water filtered during the year, gallons	16,095,381,000
6. Average quantity filtered per day, gallons	44,097,000
7. Total filtered water delivered to the distribution system during the year, gallons	15,963,645,000

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

TABLE 51—Continued

SUMMARY OF STATISTICS
 PROVIDENCE WATER SUPPLY BOARD
 FOR THE YEAR ENDED SEPT. 30, 1957

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)	46,677.02 feet
4. Discontinued during year	3,433.01 feet
5. Total now in use	729.82 miles
6. Number of leaks per mile	0.10
7. Length of pipes less than 6 inches in diameter	0
8. Number of hydrants added during year	80
9. Number of hydrants now in use	4,162
10. Number of stop gates added during year	127
11. Number of stop gates now in use	10,352
12. Number of stop gates smaller than 6 inches	0
13. 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 (net)	0 feet
Discontinued during year	0 feet
Total now in use	12.83 miles
Hydrants added during year	0
Hydrants now in use	163
Stop gates added	0
Stop gates now in use	129
Number of blow-offs	0
Range of pressure on mains	94 to 130 pounds

SERVICES

14. Kind of pipe	lead, copper and cast iron
15. Size	1/2 in. to 16 inches
16. Number of service taps added during year	1,069
17. Number now in use	58,512
18. Number of meters added	1,091
19. Number of meters now in use	58,446
20. Percentage of services metered	99.9

*Not including high pressure fire service.

THE CITY OF PROVIDENCE

WATER SUPPLY BOARD

JOHN A. DOHERTY, CHAIRMAN
EARL H. ASHLEY
UGO RICCIO
JOHN J. TIERNEY
MICHAEL N. CARDARELLI, EX-OFFICIO

552 ACADEMY AVENUE
PROVIDENCE 8, R. I.

PHILIP J. HOLTON, JR.
CHIEF ENGINEER
JOHN T. WALSH
LEGAL ADVISOR

February 14, 1958

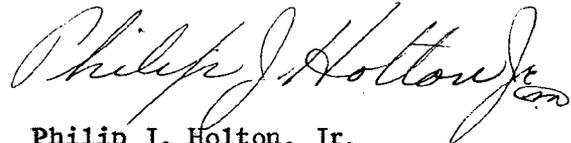
Mr. Everett Whelan
City Clerk
City Hall
Providence 3, R. I.

Dear Mr. Whelan:

At the meeting of the Water Supply Board held to-day, the Annual Report for the year ending September 30, 1957 was approved.

It is requested that this report be placed on the docket for the meeting of the City Council on Thursday, February 20th.

Yours very truly,



Philip J. Holton, Jr.
Chief Engineer

PJH/M

THE CITY OF PROVIDENCE

WATER SUPPLY BOARD

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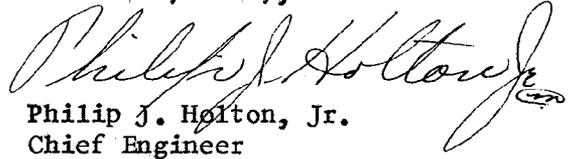
Mr. D. Everett Whelan
City Clerk
City Hall
Providence, R. I.

Dear Mr. Whelan:

I am enclosing copy of the Annual Report of the Water Supply Board for the fiscal year ended September 30, 1957, which has been signed by John A. Doherty, Chairman of the Board.

Thirty copies are being forwarded to your office for presentation to the members of the City Council at the next meeting on February 20th.

Yours very truly,


Philip J. Holton, Jr.
Chief Engineer

PJH/M
Encl.