

CITY DOCUMENT



ANNUAL REPORT

of the

WATER SUPPLY BOARD

of the

CITY OF PROVIDENCE

For the Year Ended September 30, 1962

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CITY OF PROVIDENCE

RHODE ISLAND



For the Year Ended September 30, 1962

REPORT

ADMINISTRATIVE OFFICE
WATER SUPPLY BOARD
CITY OF PROVIDENCE
OCTOBER 1, 1962

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

Gentlemen:

In compliance with Chapter XX of the Charter of the City of Providence, enacted by the General Assembly of the State of Rhode Island at its January Session, A. D. 1940, and approved April 26, 1940, we have the honor to present the twenty-second annual report of the Water Supply Board for the year ended September 30, 1962.

On January 4, 1962 John A. Doherty was reappointed a member of the Board for the ensuing term ending on the first Monday in January 1966.

At the re-organization meeting held on January 15, 1962, John A. Doherty was re-elected Chairman and John J. Deary was reappointed Secretary.

The Board has held regular meetings throughout the year, meeting practically

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

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

Respectfully submitted,

WATER SUPPLY BOARD

JOHN A. DOHERTY, *Chairman*

EARL H. ASHLEY

UGO RICCIO

JOHN J. TIERNEY

DAVID R. MCGOVERN, *Ex-Officio*

John A. Doherty
Chairman

IN CITY COUNCIL

FEB 21 1963

READ:

WHEREUPON IT IS ORDERED THAT
THE SAME BE RECEIVED.

Devereitt Whelan
CLERK

REPORT OF THE CHIEF ENGINEER

Providence, R. I.
October 1, 1962

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, 1962.

The Additions, Alterations and Improvements to the Water Purification Works, a project under the department's Master Plan, was put into operation during the year. The Gilbane Building Company of Providence was the general contractor and started work on this project in June, 1960. Work had progressed to the point that formal dedicatory ceremonies were conducted on August 22, 1962. Mayor Walter H. Reynolds and members of the Water Supply Board were hosts to the members of the City Council, department heads of the City Government, members of the Chamber of Commerce, leading representatives of business and industry throughout the area served, engineering personnel from various consulting groups, and administrative and water works management personnel of the City of New York, Metropolitan District Commission of Massachusetts, and the larger municipalities of the New England area.

The dedication ceremonies were conducted in the Auditorium and consisted of the receipt of keys to the new buildings, a welcoming address by the Mayor and the Chairman of the Water Supply Board and a brief talk describing the expanded plant facilities by the Chief Engineer. A guided tour was then conducted throughout the plant demonstrating the operational features of chemical handling, chemical feeding, power distribution, metering and electrical controls. Luncheon was served in the Auditorium following the tour of the plant and a short question and answer period followed the luncheon. It was particularly gratifying to note that the reaction of the visiting group was of the high-

est impression for the completely modern and expanded facilities of the treatment plant.

On the following Sunday, August 26, "Open House" was held with the public responding to the extent of an estimated 5,000 visitors during the afternoon. It is planned to hold "Open House" days periodically in the coming seasons so that the public may become better acquainted with the complexities and magnitude of the water treatment processes.

With the completion of the Additions, Alterations and Improvements to the Purification Works, representing a cost of \$2,070,000.00, the modernized plant is now capable of handling and treating water for the full maximum capacity of 135,000,000 gallons per day. Building improvements include alterations to the Filter Gallery, the addition of a two-story Central Operations and Control Building, a new Main Entrance Building with Lobby and Auditorium, and new adjoining Forestry and Maintenance Building and Transformer House. Mechanical equipment includes three new gravimetric type loss-in-weight ferric sulphate feeders with dissolving tanks, solution pumps, and automatic feed control proportioned to variable plant influent rates of flow, having capacities for two machines to treat the maximum plant demand of 135 million gallons daily at a dosage of 1.75 grains per gallon with the third unit performing standby or emergency protection in the event of breakdown. Adjacent to the ferric sulphate feeders are three loss-in-weight gravimetric lime feeders assembled in combination with slaking compartments and solution pumps. Similar to the ferric sulphate feeders, the combination lime feeders are proportionally controlled with capacities for two units to

handle maximum dosage at plant output capacity and provide through the third unit the standby protection for emergencies.

On the second floor are six secondary steel hoppers, three for ferric sulphate and three for quicklime, with one unit located over each chemical feed machine. Each bin has a capacity of 20 tons and provides a gravity feed for recharging the weighing hoppers on the chemical feed machines below. Two combination suction and pressure pneumatic chemical conveying systems are provided to transfer the ferric sulphate and quicklime from the 180-ton primary storage silos to the six 20-ton steel storage hoppers. Each chemical-conveying system is provided with a separate electric motor-driven rotary blower, receiver, dust filters and exhaust fans and is automatically controlled by an electrical panel which, through a series of interlocks, timers and relays, paces the conveying operation in proper sequence and shuts down automatically when the individual steel storage hoppers are filled. The conveying systems have a capacity to transfer each of the chemicals at a rate of 4 tons per hour which is approximately 175 per cent of the average day's use. A manifold or crossover piping system permits the use of either blower to transfer either chemical to any of the steel storage bins under breakdown service.

In an adjoining area on the first floor of the Central Operations and Control Building are two separate fluoride feeders of the loss-in-weight gravimetric type for handling granular sodium silicofluoride. The feeders are mounted directly over stainless steel dissolving tanks of 300 gallons capacity each provided with propeller type agitating mixers, baffle plates to prevent short circuiting flows and stainless steel wire guarded outlet protective devices. Each separate unit is automatically and proportionately controlled to the plant effluent by summation metering equipment and has a feeding capacity of 75 lbs. of chemical per hour which will treat the plant output capacity at the recommended maximum dosage of 1.20 parts per million.

The second unit, therefore, provides 100 per cent standby capacity. Fluoride chemicals are delivered to the plant in 400-lb. fibre drums and stored in a separate room above the feeders from where they are conveyed by a suction type dust free pneumatic conveyor to either of the storage-receiver units located directly over the feeders below. The transfer capacity from storage drums is 75 lbs. per minute and the storage-receivers, each with a capacity of 6,000 lbs., charge the feeders directly below through manually operated rotary bin valves.

The final treatment of chlorination is accomplished through two gas feed chlorinators presently equipped with 500 lb. per day meters capable of treating the maximum plant output at a dosage of 0.57 parts per million. Meters of 2,000 lbs. per day capacity can readily be installed in the new chlorinators increasing the maximum plant output dosage to 2.30 parts per million for a single chlorinator with the second unit providing 100 per cent standby service. Chlorine is purchased in one-ton cylinders, handled and transferred from a receiving platform by an electrical tram-rail and hoist system and stored in a room especially provided with a forced draft exhaust system for evacuating leaking or escaping chlorine fumes.

The Purification Works is all electric in operation and power is received either from the 2300 Volt Turbo Generator on Gainer Dam or from an exchange connection with the Narragansett Electric Company. Two separate transmission feeders in underground ducts have been provided between the Hydro-Electric Station and the Purification Works by utilizing two existing cables siamesed together and installing a new 3-conductor cable in a spare duct providing a capacity of 500 KVA in either feeder. Two new 2400/600 Volt oil-filled transformers with manually operated high voltage primary disconnect switches and electrically operated secondary air type circuit breakers have been installed in the new Transformer Building. Two secondary 600 Volt feeder cables, installed in underground ducts, supply the newly

installed Power Control Center in the Central Operations Building from which point the distribution is accomplished through 22 branch power circuits. The complete electrical power and transmission system also provides 100 per cent standby service under emergency conditions.

Construction of the new 40,000,000 gallon underground reinforced concrete Aqueduct Reservoir for the low service distribution system was nearly complete at the end of the year. This work, which began in February 1960, is being performed by the M. A. Gammino Construction Company of Providence. It will be the largest reinforced concrete distribution reservoir constructed in the New England area since 1928. This structure, which will require approximately 21,000 cubic yards of poured concrete and 3,500,000 pounds of reinforcing steel, will be approximately 600 feet long by 400 feet wide, and will have a water depth slightly more than 25 feet at overflow elevation 231.00. The addition of this facility will increase the total storage in the system by 79 per cent, and the low service distribution storage by 104 per cent. The design of the structure embraces a common wall with a sluice gate connection, so arranged as to permit future construction of an adjoining unit of equal capacity without removing the flowed reservoir from service. Work remaining to be done at the end of the year involves only site improvements such as fencing, grassing and construction of drives, conducting of final tests for leakage, and disinfection of the interior of the reservoir. It is anticipated that this new distribution reservoir, designed by Charles A. Maguire and Associates of Providence, will be placed in service in the coming month of October. The completed facility will cost approximately \$2,050,000.

The replacement and modernization program for control valves at the Water Purification Works continued during the year with the installation of ten 24-inch electric motor operated valves for filter wash water service. This second phase of the program totalling 28 units was completed in December 1961. The third phase

in the modernization program, the replacement of filter influent and drain sluice gates, began with the installation in filter No. 1 of a 30-inch influent and 42-inch drain butterfly type control valves with necessary pipe adapters, floor stands, and electric operators. The valves and appurtenances were furnished by the B.I.F. Industries of Providence on a low bid award of \$8,000.00 and installation by Water Supply Board forces was completed in May 1962.

A second grouping of influent and drain butterfly valves to replace defective sluice gates, comprising three 30-inch and three 42-inch butterfly valves for filters 2, 3, and 4 was also awarded under competitive bidding to the B.I.F. Industries of Providence, a division of the New York Air Brake Company, in the amount of \$25,740.00. Delivery of this second group is scheduled for December 1962, and installation should be completed before the spring of 1963.

Due to the existence of defective 42-inch valves it was necessary to provide a new connection between the 66-inch steel pipe section of the Scituate Aqueduct and the 42-inch Crosstown Feeder in Budlong Road, Cranston. The work was performed by the Fanning and Doorley Construction Company of Providence under a contract awarded in June 1961. It was completed in December 1961 at a cost of \$53,627.71. The connection was made on two successive week-end shutdowns of the 66-inch steel pipe aqueduct. During these periods the supply for the City of Warwick and the southeasterly section of the distribution system was obtained from the 60-inch Neutaconkanut Conduit through the 42-inch Crosstown Feeder. Only minor pressure deficiencies occurred in the Providence and Warwick systems due to the relatively low demands on these week ends. With the installation of the new 42-inch tapping sleeve and valve and the 42-inch butterfly valve in the Scituate Aqueduct, the necessary facilities have been provided for quick and effective control of either main feeder. Since this connection is the primary and only sizable feeder to the City

of Warwick its quick control is of the utmost importance.

Bids were received by the Board of Contract and Supply in February 1962 for completion of the full four way valving program at the most critical point in the distribution system, where the 60-inch Neutaconkanut Conduit intersects the 42-inch Crosstown Feeder at Webster and Sterling Avenues in Providence. The Fanning and Doorley Construction Company of Providence, the lowest bidder, received a contract award in the amount of \$66,590.00 for furnishing and installing two (2) 42-inch inserting type of gate valves in the 42-inch crosstown main at this location. The selection of inserting type of gate valves for this installation, while considerably more expensive than the conventional type of gate valve or butterfly valve, is necessary due to the fact that full and uninterrupted service must be continually maintained at this location in both the 60-inch and 42-inch feeders. Delivery of this equipment, which is of special manufacture, and the necessary inserting machines, is scheduled for late winter and it is expected that this installation will not be completed before the spring of 1963.

As part of the replacement program of unreliable gate valves in the Neutaconkanut Conduit, bids were received by the Board of Contract and Supply on May 8, 1962 for three (3) 48-inch and three (3) 36-inch rubber seated butterfly valves for underground service conforming to the current standard C504-58 of the American Water Works Association. The W. S. Rockwell Company of Fairfield, Connecticut was the low bidder and received a contract award in the amount of \$34,967.00 for furnishing this equipment. In relation to this equipment a contract was also awarded to the Massachusetts Engineering Company of Quincy, Massachusetts in the amount of \$3,840.00 to supply the necessary companion steel pipe sections to supplement the reduced laying length of the new butterfly valves and equal the length of the valves to be replaced. This program, which anticipates the eventual replacement of all valves in the Neutaconka-

nut Conduit began in 1960 with the insertion of a 48-inch valve in this primary feeder in Sterling Avenue at Webster Avenue in Providence. This is recognized as the most critical control point in the distribution system. The butterfly valves and companion pipe filler sections are scheduled for delivery early in the coming year, and it is planned to make these installations at key locations in the Neutaconkanut Conduit on successive week-end operations in the coming spring.

The Pitometer Survey of Trunk Mains in the Distribution System, which began in May of 1961, was completed. The final tabulated results in a bound report were received from the Pitometer Associates of New York City under date of December 1961. This survey and report is the first analysis of the trunk mains in the distribution system since the survey of 1944. The field survey included twenty-four hour flow measurements, loss of head tests, and determination of the roughness coefficient by the Hazen and Williams formula on all trunk mains in the system. This data will be evaluated on the basis of a comparison with the 1944 survey. Since that time the average daily consumption has increased by 33½ per cent, the maximum day has increased by 71 per cent, and the peak hour rate of 131.04 MGD shows an increase of 88 per cent over the 1944 rate. The report comments favorably on the general condition, operation and records of the system, the improvements now under construction, and those completed during the past seventeen years. Certain recommendations were made for improvement of the trunk main system, several of which had already been under consideration by the department. These recommendations are under study in conjunction with a long range master plan of improvements. The total cost of the Survey, which was authorized by the Board of Contract and Supply on March 7, 1961, amounted to \$14,992.14. Of this amount \$13,500.00 was paid to the Pitometer Associates for the field survey and report.

The installation of new extensions to the distribution system and the replace-

ment and relocation of existing mains required the installation of 65,685 feet of various size and kind of pipe. A major part of this footage was installed by contractors under competitive bidding. Two contracts involving 46,134 feet of main extensions and replacements were awarded during the year; one to the C. Brito Construction Company for 23,977 feet, and one to Edward F. Capaldi, Inc. for 22,157 feet.

In connection with the construction of Route 95 in Providence the M. A. Gammino Construction Company installed 2,589 feet of cast iron main and appurtenances during the year. This footage consisted of 1429 feet of 6-inch, 1042 feet of 8-inch, 12 feet of 10-inch, and 106 feet of 16-inch. This company also installed 67 feet of 6-inch and 705 feet of 12-inch cast iron main in connection with the Fox Point Hurricane Barrier now under construction. At the Aqueduct Distribution Reservoir in Cranston, the M. A. Gammino Company installed 116 feet of 36-inch, 127 feet of 48-inch and 2,240 of 60-inch prestressed reinforced concrete steel cylinder pipe connecting the 60-inch Neutaconkanut Conduit and the 66-inch Scituate Aqueduct with the reservoir.

The Campanella and Cardi Construction Company installed 2,027 feet of main at the Lippitt Hill Redevelopment Project in Providence, consisting of 16 feet of 6-inch cast iron, 43 feet of 8-inch asbestos cement, 18 feet of 8-inch cast iron, 476 feet of 12-inch asbestos cement, 7 feet of 12-inch cast iron and 1,467 feet of 24-inch cast iron pipe.

Other extensions involved the installation of 104 feet of 8-inch cast iron pipe by the Macon Construction Company in connection with the construction of the Elmwood Avenue Railroad Bridge, and 1,299 feet of 6-inch and 8-inch main which was laid by the department's forces.

Two hundred and nineteen main extensions were laid in various streets with approximately 3,809 feet remaining to be laid at the end of the year.

On June 5, 1962, a contract was awarded to the C. Brito Construction Company

for the installation of 49 post hydrants on the distribution system. Under the terms of the contract, the contractor furnished all materials except the hydrants, which were furnished by the department. Work started on August 9, 1962 and was completed on September 25, 1962, the total payment amounting to \$18,129.50.

Capital improvements, excluding the projects under the Gilbane and Gammino contracts, totalled \$672,813.83 during the year of which \$658,103.81 was for improvements to the distribution system including \$405,547.65 for main extensions, new services \$100,473.08, hydrants \$104,314.21 and gate valves \$47,768.87. The balance of \$14,710.02 includes \$5,172.02 covering the cost of installing a cedar rail fence along the access road at the base of Gainer Dam and \$9,538.00 for installing one 30-inch butterfly influent valve and also one 42-inch butterfly drain valve on filter number one at the Purification Plant.

Applications for water service totalled 1172, or 317 more than in the previous year. Of this number 126 required extensions to the distribution system. A total of 970 new services were installed, 950 general supplies and 20 fire supplies.

Under the terms of Chapter 1525 of the Ordinances and Resolutions of the City of Providence for 1946, this department was charged with the operation of the sewer rental law, which took effect October 1, 1946. During the fiscal year ended September 30, 1962, the net sewer rental collection totalled \$143,227.30.

Automotive and construction equipment owned and in use by the department totalled 28 various trucks, 19 passenger cars including 2 jeeps, 10 compressors, 2 trenchers, various pumps, and other miscellaneous equipment. The records of the department indicate that trucks were operated a total of 38,488 truck hours at a cost of 75.6 cents per hour including depreciation, compressors 3,812 hours at 44.2 cents per hour, trenchers 2,749 hours at \$1.72 per hour, and passenger cars were driven a total of 208,078 miles at a cost of 7.1 cents per mile.

SOURCE OF SUPPLY

SCITUATE WATERSHED — RAINFALL AND RUNOFF

The rainfall on the 92.8 square mile Scituate Watershed above Gainer Dam was measured as usual by rain gages at Rocky Hill, Hopkins Mills, North Scituate, Westcott District, and Gainer Dam. For the year ended September 30, 1962 a total of 40.70 inches was recorded, which is 7.72 inches less than the 47-year (1916-1962) average of 48.42 inches. The rainfall for the year was 84% of the long term average and 61% of the maximum of 66.28 inches, established during the year ended September 30, 1958.

There were seven long periods when no rainfall was recorded, ranging in duration from eight to fourteen days. The three longest periods occurred from October 23 to November 5, 1961, March 14 to 25, 1962, and from June 27 to July 8, 1962. There were two periods of seven days of successive rainfall, with the most productive of these occurring from June 18 to 24, 1962. During this period a total of 1.82 inches was recorded, with a maximum of 0.84 inches on June 24, and a minimum of 0.002 inches on June 22. Although of much shorter duration, the two-day period January 5 and 6, 1962 was the most productive for the year. During these two days a total of 2.72 inches was recorded, 0.08 inches on January 5, and 2.64 inches on January 6, the maximum day's rainfall for the year.

The total rainfall of 40.70 inches was the eighth lowest yearly rainfall experienced during the 47-year period, the lowest being for the year ended September 30, 1957 when a total of 33.43 inches was recorded. During the months of January, February, and June, the monthly rainfall exceeded the 47-year (1916-1962) averages for these respective months; the maximum monthly rainfall occurring in February when 6.15 inches were measured, a new maximum for that month. This was 2.33 inches more than the 47-year average for February. The minimum monthly rain-

fall occurred in July when a total of 1.33 inches was recorded, an amount 2.48 inches below the long term average for that month. The maximum day's rainfall for the year occurred on January 6, 1962, when a total of 2.64 inches was recorded, with the station at Gainer Dam measuring 3.07 inches.

The runoff for the year totalled 22.01 inches, which was 3.11 inches below the 47-year (1916-1962) average of 25.12 inches. During the months of October 1961, and January and March, 1962 the monthly runoff exceeded the 47-year averages for these respective months; the maximum monthly runoff occurring in March when 5.24 inches were recorded, an amount 0.51 inches more than the 47-year average for that month. The minimum monthly runoff occurred in July when minus 0.09 inches was recorded, an amount 0.74 inches below the long term average for that month.

Statistical rainfall and runoff data for the year ended September 30, 1962, and the years of previous watershed record may be found in Tables 1, 2, 3, and 4 of the Appendix.

SCITUATE WATERSHED STORAGE, DRAFT, AND YIELD

On October 1, 1961 the water in Scituate Reservoir was at elevation 279.99, or 4.02 feet below the spillway level; the total storage then amounted to 32,769,000,000 gallons, or 88.5% of capacity. At the end of the year, October 1, 1962, the reservoir was at elevation 277.14, or 6.87 feet below the spillway level, with a storage of 29,840,000,000 gallons, or 80.6% of capacity. From October 1, 1961 the elevation rose slightly to 280.34 on October 9 and then decreased gradually, with minor fluctuations, to 278.64 on January 6, 1962; the storage then was 31,340,000,000 gallons. After a rapid rise to 281.61 on January 22 the elevation then decreased gradually, with slight fluctuations, to 279.51 on March 10. Another rapid rise occurred,

with the elevation reaching 284.36 on April 4; this was 0.35 feet above spillway elevation of 284.01. It decreased slightly to 284.04 on May 1 and then rose to the maximum for the year of 284.43 on May 22, or 0.42 feet above spillway level. At this point the total storage amounted to 37,482,000,000 gallons, or 101.3% of capacity. The elevation then decreased slowly to 283.45 on July 1; from this point there was a steady decrease to 277.12 on September 27, or 6.89 feet below spillway level. The total storage at that time amounted to 29,820,000,000 gallons, or 80.6% of capacity, the smallest amount in storage during the entire year. The elevation then rose negligibly to 277.14 on October 1, 1962.

On October 1, 1961 the combined storage on the watershed, including Regulating, Westconnaug, Barden, Moswansicut, Ponaganset and Scituate Reservoirs amounted to 37,094,000,000 gallons, or 89.9% of combined total capacity. At the end of the year, October 1, 1962, the combined storage was 33,906,000,000 gallons, or 82.2% of capacity. This was the minimum storage during the entire year. The maximum combined storage was on April 7, when 41,801,000,000 gallons, which is 101.3% of capacity, were impounded.

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

The total draft from the Scituate Watershed for the year was 38,690,600,000 gallons, or an average of 106,000,000 gallons per day. The draft for water supply purposes was 18,851,500,000 gallons, or an average of 51,650,000 gallons per day. The discharge into the north branch of the Pawtuxet River totalled 19,839,100,000 gallons, equal to 54,350,000 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 35,502,600,000 gallons, or an average of 97,270,000 gallons per day, which was 8,730,000 gallons per day less

than the average daily draft, and 13,650,000 gallons per day less than the 110,920,000 gallons per day average daily yield for the 47-year period 1916 through 1962.

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

SCITUATE WATERSHED FORESTRY AND MAINTENANCE OPERATIONS — 1962

THE MAINTENANCE PROGRAM

Total turf acreage under management increased to approximately 95 acres with the addition of new turf at the Aqueduct Distribution Reservoir and Purification Works. A second Worthington tractor was purchased to mow the new turf on 25 acres of slope and flats at Aqueduct Reservoir. This new tractor-mower unit will also supplement mowing on other turfed areas when necessary. Fertilization and liming of turf is being efficiently accomplished by a new eight-foot spreader which is pulled by a Worthington tractor. Hydraulic application of fertilizer and seed on slopes is being considered for the future.

Herbicidal brush control was primarily confined to firelanes and woods roads at the Source of Supply. A total of 7.85 miles of these important access routes were sprayed with the hydraulic spray unit. Portions of the Aqueduct, Hydro-electric line right-of-way and shoreline areas were also treated. A 300-gallon stainless steel tank, resistant to corrosion by ammonium sulfamate, was fabricated for use in the brush control program. The tank is also available for use in the suppression of forest fires.

A 1900-foot sturdy rustic fence was erected by Forestry and Maintenance personnel at the base of Gainer Dam. The fence, which consists of white-cedar rails inserted into heavy concrete posts, is similar to a fence installed at the Gainer Memorial in 1949. The rustic fence has enhanced the attractiveness of the landscape at Gainer Dam and has prevented damage caused by vandals attempting to engage the turfed slopes with vehicles.

Aesthetic and roadside improvements were made along Hartford Pike, East Road, and the Gainer Dam area. Other routine maintenance of fencelines, fire lanes, aqueduct rights-of-way, distribution reservoirs and Rockland Cemetery were accomplished as necessary.

THE FORESTRY PROGRAM TIMBER PRODUCTION

Timber harvesting operations included mostly thinning or improvement cutting in coniferous plantations or stands containing a mixture of conifers and hardwoods. The total yield from woods operations was 852.95 tons of pulpwood, 108.5 cords of charcoal wood or fuelwood, and 13,623 board feet of sawtimber.

Thinned plantations that were established before 1930 are now being given consideration for the harvesting of piling or sawlogs. The 10 x 10 timbers used in the Rocky Hill Fair Woodmans Contests were sawn from logs cut from plantation white pine. The Water Supply Board will realize a significantly higher return from stumpage sales involving sawlogs or specialized woods products.

CULTURAL OPERATIONS

Sixteen acres of underplanted red pine on Tunk Hill were released using the amate-in-frill method. The treated trees consisted of slow growing, low-quality oak in the 3 to 6 inch diameter range. About 30 to 40 percent of the oak were not treated to maintain a coniferous-hardwood mixture. It is the opinion of the forester that red pine can be grown to a healthy maturity if in association with trees that are not susceptible to the *Fomes annosus* root disease.

Forestry personnel pruned and pre-commercially thinned nine acres of spruce plantation. The persistent branchiness of spruce makes pruning a necessity for both fire prevention and cultural purposes.

Competing sprout growth was mechanically cut by brushkings in five acres of white pine that had been initially released

in 1955. Growth of white pine is particularly good in the treated areas, and no additional releasing operations should be necessary.

REFORESTATION

Open fields totaling 8.31 acres bordering Moswansicut Reservoir were planted to white pine. Hemlock, larch and white spruce were planted in roadside areas prepared for planting during the winter season. Site preparation of these planted areas consisted of the removal and herbicidal treatment of undesirable hardwood brush and trees that would suppress the young seedlings. A total of 9150 seedlings and transplants were planted on 17.26 acres.

PROTECTION OF THE WATERSHED

Fires: City of Providence watershed lands escaped without a single forest fire during the explosively dangerous 1962 spring fire season. Of the many woods fires that burned throughout Rhode Island, only one fire seriously threatened the watershed. The fire started on May 10, 1962 at the town dump in the Clayville section of Scituate and burned 35 acres of privately-owned woodland on the watershed. City forestry crews assisted in the suppression of this and three other fires on or near the 92.8 square-mile watershed.

A deeply burning fire damaged 1.5 acres of City woodland in the Battey Meeting House Road section of the watershed on September 15, 1962. This was one of three fires that started on a bordering plat development. The increasing amount of suburban housing on the watershed area has created a potentially greater fire hazard.

Forest Insects: Surveillance of forested areas revealed damaging populations of white pine weevil (*Pissodes strobi*), Pales weevil (*Hylobius pales*), shoot moths (*Dioryctria* sp.), cone weevils and needle miners. Shoot moth injury to leaders of red pine was more prevalent than usual.

White pine developed multiple leader growth during the 1962 growing season.

Some of the abortive growth was probably caused by an early summer drought followed by late summer rains. It is suspected that much of the damage was caused by an unidentified minute insect feeding on the growing bud tissue.

White-pine weevil control measures proceeded on a limited basis. Some spider-mite control was applied to spruce on several sites off the watershed area for aesthetic purposes.

Forest Diseases: Infection centers of *Fomes annosus* continue to increase in number in plantations. As indicated in the 1961 Annual Report, most coniferous species are susceptible to attack by the disease; however, the symptomatic reaction of the various species differ. An extensive infection in a sizable spruce stand was detected when sap was discovered seeping from the bark near the base of spruce trees. It is believed that the resinous material could not be translocated to specific sections of the root systems because certain roots had become decayed.

Because *F. annosus* frequently enters a stand through freshly exposed stumps, a preventive measure has been the application of creosote, and recently urea, on stumps in thinned plantations. It should be emphasized that stump treatment will not insure complete protection from *F. annosus* infections. Treatment will, however, be an effective deterrent against the spread of the disease, especially in plantations receiving an initial thinning.

The long-lasting damaging effects of fire have become evident from oak logs harvested in the Tunk Hill section of the watershed. A fire ravaged the Matteson Road area on April 22, 1930. Those trees that were not killed were wounded permitting the entry of various decay-causing fungi. The area is being logged to remove all merchantable oak that have not been completely culled by butt or heart rot.

Control of Trespass: The number of trespass violations has been significantly reduced because of increased inspection and patrol of watershed lands. Chronic

violators are referred to local police for arrest and prosecution. Malicious vandalism and roadside littering are problems that continue to be difficult to control. Prompt and firm action against known violators has discouraged vandalism to some extent.

GAINER DAM—HYDRO-ELECTRIC PLANT

The Hydro-Electric Station at Gainer Dam has been in satisfactory operation throughout the year. The plant was operated on 269 days for a total of 3239 hours. Power generated from the discharge of 19,762,700,000 gallons of water through the 1875 KVA Hydro-Electric Turbo Generator to the Pawtuxet River amounted to 3,686,600 kilowatt hours, using 5,361 gallons of water for each kilowatt hour generated. Of the power generated, 3,372,300 kilowatt hours, or 91.47%, was sold to the Narragansett Electric Company, and 262,660 kilowatt hours were used at the Water Purification Works. The rate of discharge through the station, concentrated during the hours of down-stream mill operations, averaged 146.44 million gallons per day.

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

WATER PURIFICATION WORKS

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

Additions, Alterations, and Improvements to the Works are described in detail at the beginning of this report.

Water was drawn from Scituate Reservoir between elevations 213 and 220 and totalled 18,851,452,000 gallons, or an average of 51,648,000 gallons per day; the maximum for any one day being 78,367,000 gallons on July 20, 1962 and the minimum 31,146,000 gallons on January 6, 1962.

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 slightly more than three 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 loss in weight gravimetric type, the automatic operation of each being controlled by an electric signalling device proportional to the rate of flow of water through the influent Venturi.

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 six pounds of water to each pound of material.

Ferri-Floc used totalled 1,803,436 pounds, or an average of 4,941 pounds daily; with a maximum for any one day of 8,500 pounds on July 20, 1962 and a minimum of 2,450 pounds on October 15, 1961. The dosage averaged 0.67 grains per gallon, the maximum for any one day being 0.82 grains per gallon and the minimum 0.50 grains per gallon.

Quicklime used during the year totalled 1,761,529 pounds, or an average of 4,826 pounds daily; with a maximum for any one day of 7,764 pounds on August 7, 1962 and a minimum of 2,523 pounds on January 6, 1962. The lime dosage averaged 0.65 grains per gallon, the maximum for any one day being 0.89 grains per gallon and the minimum 0.57 grains per gallon.

Filters were operated a total of 70,356.78 hours during the year, at an average of 192.76 filter hours per day; the average length of filter runs being 78.13 hours, which is 3.30 hours, or 4.1 per cent less than the average of 81.43 hours for the previous year. The maximum daily average of filter runs was 128.71 hours on October 7, 1961 as compared to a maximum of 140.42 hours during the previous year; and the minimum was 39.75 hours on June 1, 1962 as compared to a minimum of 48.66 hours during the previous year.

Wash water rates varied from 12 to 32 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 16 to 30 inches rise per minute and an average sand expansion of 34%. 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 32 inches per minute rise and an average sand expansion of 32%. Filters 11, 12, 13 and 14, which have 0.46 millimeter sand, were washed at rates varying from 12 to 27 inches rise per minute and an average sand expansion of 42%. A total of 98 tests were made during the year to determine the sand expansion and rate of rise. The total wash water used was 112,896,000 gallons, an average of 309,000 gallons per day, or 117,600 gallons per wash. The 112,896,000 gallons of wash water used was 2.1% less than the 115,335,000 gallons for the previous year.

The total water filtered for the year amounted to 16,920,368,000 gallons, an average of 46,357,000 gallons daily; the maximum day being 73,496,000 gallons on August 6, 1962, and the minimum 29,088,000 gallons on December 25, 1961. The average rate of filtration per filter was 5,770,000 gallons per day, and the average amount of water filtered per filter per run was 18,780,000 gallons, or 0.5% more than the 18,690,000 gallons for the previous year.

The total plant effluent, or pure water delivered to the Scituate Aqueduct and the Kent County Water Authority, totalled 16,807,472,000 gallons, an average of 46,048,000 gallons per day, with a maximum of 73,240,000 gallons on August 6, 1962 and a minimum of 28,612,000 gallons on December 25, 1961.

With the exception of a few short-period shutdowns to make inspections and adjustments to the fluoridizers, fluoridation of the plant effluent delivered to the Scituate Aqueduct was 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. From the beginning of fluoridation on September 2, 1952 sodium silicofluoride had been added in amounts sufficient to produce a fluoride ion concentration throughout the distribution system of 1.0 part per million from June 1 to September 30, and 1.2 parts per million during the other months of the year. A notice, dated September 12, 1961, was received from the Director of the R. I. State Health Department stating that the fluoride ion concentration should be maintained at 1.0 part per million throughout the entire twelve months of the year; since receipt of this notice we have complied with the instructions.

Plant effluent delivered to the Scituate Aqueduct and treated with sodium silicofluoride amounted to 16,590,382,000 gallons, an average of 45,453,000 gallons per day. Sodium silicofluoride used during the year totalled 218,261 pounds, or an average of 598 pounds per day; with a maximum for any one day of 916 pounds on December 5, 1961 and a minimum of 377 pounds on December 25, 1961. The actual dosage of fluoride ion averaged 0.94 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 car-

ried on continuously out of abundant caution. The amount treated with chlorine totalled 16,606,109,000 gallons, an average of 45,496,000 gallons per day. Water delivered to Kent County is chlorinated separately by their facilities. Chlorine used during the year totalled 55,943 pounds, or an average of 153 pounds per day; with a maximum for any one day of 232 pounds on August 6, 1962 and a minimum of 94 pounds on December 25, 1961. The chlorine dosage averaged 0.40 parts per million, the maximum and minimum dosages being 0.43 and 0.38 parts per million. Chlorine residual of the water at a point adjacent to the main aqueduct averaged 0.027 parts per million, and of the tap water at the Providence City Hall 0.006 parts per million.

The following statistics show that the chemical cost of treatment for the year ended September 30, 1962 was \$4.66 per million gallons, or 1.1% less than the figure of \$4.71 last year. The price per ton of Ferri-Floc remained at \$53.05 during the entire year compared with a range of \$53.05 to \$55.26 the previous year. The price per ton of quicklime varied from \$21.02 to \$20.47 as against \$20.92 to \$26.75 during the previous year. Sodium silicofluoride remained at \$139.35 a ton for the entire year; last year the price per ton varied from \$139.35 to \$139.39. Chlorine was purchased at \$135.00 per ton, the same price as paid during the previous year.

	Year Ended Sept. 30, 1961	Year Ended Sept. 30, 1962
Ferri-Floc	0.63 G.P.G.	0.67 G.P.G.
Quicklime	0.66 G.P.G.	0.65 G.P.G.
Sodium Silicofluoride.....	1.04*	0.94*
Chlorine	0.40 P.P.M.	0.40 P.P.M.
Length of Filter Runs.....	81.43 Hrs.	78.13 Hrs.
Tap Water Iron.....	5 P.P.M.	5 P.P.M.
Tap Water Color.....	0.01 P.P.M.	0.01 P.P.M.
Cost of Chemicals per M.G. of Water Treated	\$4.71	\$4.66

*Dosage expressed as P.P.M. (parts per million) of fluoride.

G.P.G.=Grains per gallon.

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

The Ferri-Floc used as a coagulant was obtained under contract from Faesy & Besthoff, Inc., New York, for the period October 1, 1961 to September 30, 1962 at \$53.05 per ton.

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

Ferri-Floc has been delivered in bulk carload lots to the railroad siding at Washington, R. I., about five and one-half miles from the Water Purification Works. Deliveries to the plant have been made by our force with the use of a Pneumatic Transfer Truck, which removes the material 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. A combination suction—pressure pneumatic conveying system transfers the material from the silo to three 20-ton secondary steel storage hoppers located directly over the three Ferri-Floc feeders. This system is described in detail at the beginning of this report. The 240 tons storage provided by the silo and hoppers assures a maximum of approximately 97 average days' supply.

Analysis of the Ferri-Floc received has shown an average ferrous iron content of

0.57%, which is 0.93% less than the maximum of 1.50% allowed by the specifications. The average water soluble ferric sulphate ($\text{Fe}_2(\text{SO}_4)_3$) content of the nineteen deliveries received was 73.18%, or 4.18% more than the minimum of 69% permitted by specification requirements. The average amount of material passing a 20 mesh per inch screen was 45.5% as compared to the permissible maximum of 45.0%. The following table shows the date of delivery, together with the per cent of ferrous iron, per cent of water soluble ferric sulphate, and per cent passing a 20 mesh per inch screen.

Date Received	Percent Ferrous Iron	Percent Water Soluble Ferric Sulphate	Percent Passing a 20 Mesh per Inch Screen
October 2, 1961.....	0.57	73.35	39.9
November 6, 1961..	0.54	72.14	44.2
November 13, 1961	0.46	71.49	47.8
November 13, 1961	0.69	72.03	60.1
December 26, 1961	0.49	72.82	52.8
January 8, 1962.....	0.59	74.25	35.8
January 8, 1962.....	0.47	74.29	44.4
February 23, 1962..	0.34	73.21	47.5
March 5, 1962.....	0.38	72.46	50.6
March 14, 1962.....	0.57	71.10	39.0
April 24, 1962.....	0.65	74.32	33.6
April 25, 1962.....	0.78	74.11	49.1
May 7, 1962.....	0.74	74.89	46.7
June 20, 1962.....	0.58	74.03	44.3
June 27, 1962.....	0.61	74.61	38.1
July 23, 1962.....	0.58	72.17	51.5
July 30, 1962.....	0.60	72.32	47.9
August 6, 1962.....	0.56	72.35	44.5
September 25, 1962	0.70	74.50	46.0

All deliveries met specification requirements with respect to ferrous iron and ferric sulphate contents, but ten failed to meet screen size requirements. The manufacturer was notified to this effect and requested to conform to his obligations.

Quicklime was obtained under contract with the Giffordline Chemical Company, Inc., Cranston, Rhode Island from October 1, 1961 to May 27, 1962 at a price of \$21.02 per ton. Specifications for the quicklime purchased from this company read as follows: "The material furnished shall be granular or fine grain quicklime, of which 100% shall pass a 4 mesh per inch screen and not less than 90.0% shall be retained on a 100 mesh per inch screen. Insoluble matter shall be less than 2%

and magnesium oxide shall be less than 3%. It shall have an available calcium oxide (CaO) content of not less than 90%. The calculation of the available lime shall be on an 'As Received' basis."

Analysis of the quicklime received from the Giffordline Chemical Company, Inc., showed an average available calcium oxide content of 93.6%, which is 3.6% greater than specification requirements. The per cent of material passing a 4 mesh per inch screen was 100% on every delivery and the per cent retained on a 100 mesh per inch screen average 93.8%. 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 18, 1961.....	92.8	90.0
October 20, 1961.....	92.8	92.0
October 25, 1961.....	93.9	90.8
December 4, 1961.....	96.6	92.7
December 11, 1961.....	93.4	95.5
January 17, 1962.....	94.3	94.7
March 14, 1962.....	93.4	93.0
March 21, 1962.....	92.8	96.9
April 16, 1962.....	92.0	98.6

The table shows that all nine deliveries met specification requirements.

Shipments of quicklime received from May 28 to September 30, 1962 were obtained under contract with the New England Lime Company, Adams, Massachusetts at a price of \$20.47 per ton. Specifications covering shipments of quicklime from this supplier were the same as governed material received from the Giffordline Chemical Company, Inc.

Analysis of the quicklime received from the New England Lime Company showed an average available calcium oxide content of 93.9%, which is 3.9% greater than specification requirements. The per cent of material passing a 4 mesh per inch screen was 100% on every delivery tested and the per cent retained on a 100 mesh per inch screen averaged 99.0%. The following table shows the date of delivery,

together with the per cent of available calcium oxide and the per cent of material retained on a 100 mesh per inch screen:

Date Received	Percent Available Calcium Oxide	Percent Retained on a 100 Mesh per Inch Screen
May 28, 1962.....	94.3	99.7
June 4, 1962.....	93.4	99.7
June 11, 1962.....	93.7	99.0
July 2, 1962.....	93.0	96.5
July 9, 1962.....	95.4	98.7
July 16, 1962.....	93.3	99.6
August 29, 1962.....	94.2	99.3
September 5, 1962.....	95.2	99.0
September 12, 1962.....	92.2	99.5

The table shows that all nine deliveries met specification requirements.

Quicklime has been delivered in bulk carload lots to the railroad siding at Washington, R. I. Deliveries to the plant have been made by our force with the use of the same Pneumatic Transfer Truck used for transporting the Ferri-Floc. The material has been delivered into a storage silo of the same size and construction as the Ferri-Floc silo. A combination suction-pressure pneumatic conveying system transfers the material from the silo to three 20-ton secondary steel storage hoppers located directly over the three combination lime feeders and slakers. This system is described in detail at the beginning of this report. The 240 tons storage provided by the silo and hoppers assures a maximum of approximately 99 average days' supply.

Sodium silicofluoride was purchased under contract with the Henry Sundheimer Company, New York, for the period October 1, 1961 to September 30, 1962 at \$139.35 per ton. The specifications covering this material are the American Water Works Association Standard for Sodium Silicofluoride, AWWA B702-60, with slight modifications as to size and type of shipping containers, and exclusion of material not of domestic manufacture. Among other requirements, the specifications call for a minimum of 98 per cent sodium silicofluoride which corresponds to approximately 59.4 per cent fluoride ion. The average sodium silicofluoride content

of eight shipments received was 99.2%. The following table shows the date of delivery and per cent of sodium silicofluoride.

Date Received	Percent Sodium Silicofluoride
October 23, 1961.....	98.6
December 4, 1961.....	99.6
January 29, 1962.....	98.7
March 27, 1962.....	99.7
May 21, 1962.....	99.5
June 11, 1962.....	99.6
August 1, 1962.....	99.8
August 16, 1962.....	97.7

The table shows that all eight deliveries met specification requirements.

A special suction type pneumatic conveyor system for handling the sodium silicofluoride is located on the second floor of the Central Operations and Control Building. Facilities for storing, handling and feeding the material are described at the beginning of this report. Space for storage of 40 tons of the chemical provides a maximum of approximately 135 average days' supply.

The liquid chlorine used to treat the water was obtained under contract with the Fields Point Manufacturing Company, Inc., Providence, for the period October 1, 1961 to September 30, 1962 at \$135.00 per ton. This material was delivered to the Purification Plant by our force in lots of two cylinders, each containing one ton of chlorine. Special tramrail equipment is used to transfer the containers from tailboard delivery to platform scales. Two one-ton cylinders are carried on each of two platform scales, with four additional containers stored in cradles in the same room.

This room, equipped with a special exhaust system to remove any escaping chlorine fumes, is located on the second floor of the Central Operations and Control Building, directly over the gas feed chlorinators. These facilities for handling, storing, and feeding chlorine are described earlier in this report. Total storage of 16,000 pounds assures a maximum of approximately 105 average days' supply.

Number 6 fuel oil used for heating the plant from October 1961 to May 1962,

and during September 1962, totalled 50,025 gallons, an average of 4,169 gallons per month. Number 2 fuel oil was used during October and November 1961, and from May to September 1962, for heating water. The amount used totalled 5,433 gallons, an average of 453 gallons per month.

WATER PURIFICATION WORKS LABORATORY

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

The total number of samples obtained from all sources during the year amounted to 13,016 which, based on a forty-hour work week means that one sample or another was obtained every 10 minutes. Tests made on these samples included chemical, sanitary chemical and mineral analyses, and bacteriological and microscopical examinations. The total number of tests made amounted to 100,549 which, based on a forty-hour work week, means that the water was receiving one test or another every 74 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. Deliveries of sodium silicofluoride were also tested, not only for conformance to specifications but to assure that the proper concentration of fluoride ion would be maintained throughout the distribution system. Filter washings were regulated by means of tests on the sand expansion and rate of rise of wash water. Samples taken after disinfection of extensions to the distribution system were tested for chlorine residual, coliform bacteria, 35°C and 20°C bacteria before permitting any extension to be placed in service. Consumer complaints were serviced and recommendations made to eliminate the source of trouble.

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

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

The population served by the City of Providence water supply is approximately 377,486. In accordance with the above table, and recommendations given in the Standards, the minimum number of bacteriological samples that should be obtained from the distribution system per month for this population is 200. The actual number of bacteriological samples obtained in the distribution system for the

year amounted to a total of 3,352 or an average of 279 per month, a figure 40% greater than recommended by the Standards and more than is required for a population of 700,000. A sample for chemical and sanitary chemical analysis was also obtained with each bacteriological sample.

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

Civil Defense activities were continued during the year, consisting of participation in meetings, and testing of the water for radioactivity.

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

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

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

TRANSMISSION AND DISTRIBUTION

SCITUATE AQUEDUCT

The Scituate Aqueduct, which conveys the effluent water from the Water Purification Works in Scituate to the distribution system, has been in continuous and satisfactory service throughout the year with the exception of two shutdowns of the 66-inch and 48-inch steel pipe section. This section, from the Siphon Chamber to Reservoir Avenue in Cranston, was taken out of service from 8:30 A.M. on Saturday, December 9 to 11:00 P.M. Sunday, December 10, 1962, and again from 8:30 A.M. Saturday, December 16 to 10:30 P.M. Sunday, December 17 in connection with the work of revalving the wye connection from the 66-inch steel pipe aqueduct to the 42-inch Budlong Road main in Cranston. Maintenance of the property along the Scituate Aqueduct 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 2,940,180,000 gallons, or an average of 8,055,288 gallons per day.

Neutaconkanut Station pumped 1,454,620,000 gallons through the east Venturi and 958,920,000 gallons through the west Venturi meter for a total of 2,413,540,000 gallons, or 6,612,438 gallons per day, and Bath Street Station pumped 526,640,000 gallons, or 1,442,849 gallons per day.

The total power required for pumping at both stations amounted to 1,208,820 kilowatt-hours. Neutaconkanut Station required 958,500 kilowatt-hours, and Bath

Street Station 250,320 kilowatt-hours. The cost of power at both stations was \$20,631.26, or \$7.02 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 fifty hours and thirty minutes, pumping 14,250,000 gallons during the year. Periodic test runs of the auxiliary gasoline engine driven pumps at the Bath Street Pumping Station were made throughout the year. These pumps were operated a total of twenty-seven hours, pumping 3,530,000 gallons for the year.

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

DISTRIBUTION RESERVOIRS

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

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

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

WATER DISTRIBUTION SYSTEM

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

to and the replacement of the appurtenances.

The contract in connection with revalving the wye connection from the 66-inch steel pipe aqueduct to the 42-inch cast iron main in Budlong Road in Cranston, awarded to the Fanning and Doorley Construction Company in June 1961, involved the installation of a 42-inch by 42-inch wet tap in the Budlong Road main, a 42-inch welded saddle connection into the 66-inch steel pipe aqueduct, and the installation of a 42-inch butterfly valve with steel pipe reducers in the 48-inch steel pipe aqueduct.

The amount of pipe laid during the year, all sizes totalled 65,685.02 feet including 52,490.56 feet of asbestos cement pipe, 10,711.59 feet of cement lined cast iron pipe, and 2,482.87 feet of prestressed reinforced concrete steel cylinder pipe.

A total of 13,719.59 feet of pipe was removed or abandoned, resulting in a net increase to the distribution system of 51,965.43 feet. In the City of Providence the net increase amounted to 4,555.55 feet, in the City of Cranston 23,736.81 feet, in the town of Johnston 13,719.41 feet and the town of North Providence 9,953.66 feet.

At the end of the year the total length of mains in the distribution system aggregated 776.43 miles including 12.87 miles in the special high service fire system in the City of Providence. Asbestos cement pipe in the system totalled 869,953.30 feet, consisting of 473,407.17 feet of 6-inch, 358,192.29 feet of 8-inch, 26,323.24 feet of 12-inch, 8,615.28 feet of 16-inch and 3,415.32 feet of 20-inch. Prestressed reinforced concrete steel cylinder pipe totalled 57,111.15 feet, consisting of 2,380.54 feet of 16-inch, 32,694.08 feet of 24-inch, 19,553.66 feet of 30-inch, 116.01 feet of 36-inch, 126.97 feet of 48-inch and 2,239.89 feet of 60-inch. Reinforced concrete steel cylinder pipe totalled 36,597.00 feet, consisting of 715.00 feet of 36-inch, 15,312.00 feet of 48-inch and 20,570.00 feet of 60-inch. Steel pipe totalled 10,032.00 feet including 1,584.00 feet of 48-inch and 8,448.00 feet of 66-inch. The remaining footage

consists of cast iron pipe including 1,918.641.78 feet of 6-inch, 526,314.11 feet of 8-inch, 13,017.62 feet of 10-inch, 354,249.32 feet of 12-inch, 140,523.33 feet of 16-inch, 16,360.34 feet of 20-inch, 62,309.92 feet of 24-inch, 59,725.89 feet of 30-inch, 9,235.80 feet of 36-inch, and 25,500.74 feet of 42-inch, totalling 3,125,878.85 feet.

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

Stop gates installed during the year, including replacements, totalled 198. In Providence a total of 76 stop gates was installed, thirty-six 6-inch including four inserting valves, twenty-three 8-inch including one inserting valve, one 10-inch, four 12-inch, six 16-inch including 2 butterfly valves, and six 24-inch. In Cranston a total of 51 stop gates was installed, sixteen 6-inch, twenty-eight 8-inch, one 12-inch, one 36-inch butterfly valve, four 42-inch including one butterfly valve, and one 60-inch butterfly valve. Stop gates installed in Johnston totalled 43 including thirteen 6-inch and thirty 8-inch, and in North Providence a total of 28 was installed, sixteen 6-inch, nine 8-inch and three 12-inch.

Stop gates removed or abandoned, including replacements, totalled 56, thirty-six 6-inch, four 8-inch, two 12-inch, four 16-inch, six 24-inch and two 36-inch in Providence, one 6-inch in Cranston, and one 8-inch in Johnston. At the end of the year there was a total of 10,598 stop gates in use in the system ranging from 6-inch to 60-inch including five 12-inch, and fifteen 16-inch rotary plug valves, and six 16-inch, two 20-inch, one 36-inch, one 42-inch, two 48-inch, and one 60-inch butterfly valve.

Hydrant gates installed during the year totalled 130, in Providence 62 six-inch and 2 eight-inch, in Cranston 52 six-inch and 1 eight-inch; in Johnston 4 six-inch, and in North Providence 9 six-inch. Hydrant gates removed or abandoned during the year totalled 14, in Providence 7 six-inch and 6 eight-inch, and in Cranston 1 six-inch. Hydrant gates in use at the end of the year totalled 4,170.

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

The total number of gates in the system, not including service gates, all sizes, in use at the end of the year totalled 14,809.

Details of gates in use September 30, 1962 are shown in Table 28 of the Appendix.

Private pipes connected to the distribution system at the end of the year totalled 212. In Providence there was a total of 116, in Cranston 59, in Johnston 17 and in North Providence a total of 20.

A total of 970 services, general and fire supplies, was installed during the year; 311 in Providence, 391 in Cranston, 140 in Johnston, and 128 in North Providence. The number of active services in the system at the end of the year totalled 61,281 including both general and fire supplies, consisting of 61,230 metered services and 51 unmetered services. Active metered services at the end of the year constituted 99.92% of the total active services in the system.

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

Public fire hydrants in use at the end of the year totalled 4,660, which included 3,107 post type and 1,553 flush type hydrants. Post hydrant installations totalled 211, including 95 which replaced flush type hydrants, 28 replacing post type hydrants and 88 new post type hydrant installations including 27 in Providence, 49 in Cranston, 3 in Johnston and 9 in North Providence.

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

Leaks in the distribution and transmission mains totalled 48 during the year, 34 occurring at joints and 14 as a result of ruptured mains. Leaks at joints averaged 1 for every 22.84 miles of mains, while total leaks averaged 1 for every 16.18 miles of main.

The number of meters repaired and tested in our Meter Repair Shop was 7,646, while those receiving attention in the field numbered 163, making a total of 7,809 or 1,898 less than during the previous year. The cost of meter repairs in the shop averaged \$2.35 per meter as against \$2.21 last year. Meters requiring service in the field involved an average expenditure of \$2.42 during the current year as compared with \$3.63 the previous year.

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

CONSUMPTION

Water consumption for the year ended September 30, 1962, not including 119,663,000 gallons used in filling, testing, and disinfecting Aqueduct Reservoir, amounted to 16,687,539,000 gallons, or an average of 45,719,285 gallons per day. This average was 525,047 gallons per day more than the average for the previous year. The increase occurred during the months of October 1961 and January, March, April, May, June, July, and August 1962, ranging from 120,000 gallons per day in March to 3,490,000 gallons per day in May. During the months of November and December 1961, and February and September 1962 the consumption was less than for the corresponding months of the previous year, ranging from 90,000 gallons per day less in December 1961 to 2,910,000 gallons per day less in September 1962.

The maximum daily consumption occurred on August 6, 1962 when 73,766,000 gallons were consumed, which was 10,934,000 gallons less than the record maximum of 84,700,000 gallons on June 17, 1957.

The maximum month's consumption was in August 1962 when 1,685,883,000 gallons were used, and the minimum month was February 1962 when 1,173,507,000 gallons were consumed.

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

FINANCIAL SUMMARY

The gross income for the year ended September 30, 1962 totalled \$3,235,326.20, an increase of \$125,543.29 over the previous year. Revenue from the sale of water alone was \$2,794,556.45, an increase over the previous year of \$35,953.19. The remaining income of \$440,769.75 was received from other sources, including hydrant rentals, sale of power, installation of services, miscellaneous items, and the surplus in the Meter Revolving Fund. The receipts for these items show an increase of \$89,590.10.

During the year total payments for water main extensions amounted to \$166,134.90, an increase over the previous year of \$40,756.77. Income from service connection charges amounted to \$95,864.00, an increase over the previous year of \$23,068.00. At the end of the year, unpaid water bills totalled \$278,953.13 as compared with \$234,582.13 at the beginning of the year, or 8.8% of the total net billing. Miscellaneous Accounts Receivable amounted to \$11,077.40 at the end of the year as compared with \$15,058.45 at the beginning of the year.

Operating Expenses, including Taxes, Employees' Retirement System and Social Security payments totalled \$1,958,308.47, an increase over the previous year of \$125,425.82.

Interest on the Bonded Debt, Payment to the Sinking Fund, plus the appropriation to the Water Depreciation and Extension Fund, totalled \$1,277,017.73. The aggregate of all expenditures of the Board during the year was \$2,855,808.47, which, deducted from the gross revenue of

\$3,235,326.20, leaves a net balance of \$379,517.73. According to law this reverts to the Sinking Fund for the retirement of water bonds.

During the present fiscal year ended September 30, 1962, \$4,000,000.00 in bonds were retired. This leaves a gross bonded debt of \$10,000,000.00 and of this amount \$2,500,000.00 will mature in December 1962.

Bonds totalling \$3,150,000.00 and short term notes in the amount of \$300,000.00 will be issued during the month of December 1962 to cover the cost of the new 40-Million Gallon Covered Reservoir in the City of Cranston and the new Additions, Alterations and Improvements at the Water Purification Works in Scituate, R. I.

The net bonded debt at the end of the present year was \$544,964.77, and at the end of the previous year \$1,213,922.37, a reduction of \$668,957.60.

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 39 to 54 of the Appendix.

A summary of statistics of the Providence Water Supply Board for the year ended September 30, 1962 may be found in Table 55 of the Appendix.

Respectfully submitted,

PHILIP J. HOLTON, JR.
Chief Engineer

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TABLE 1
MONTHLY RAINFALL IN INCHES ON SCITUATE WATERSHED
For Year Ended September 30, 1962

1961-1962	STATIONS ON WATERSHED					Average
	Rocky Hill	Hopkins Mills	North Scituate	Westcott	Gainer Dam	
October.....	2.79	2.44	2.38	2.59	2.82	2.60
November.....	3.27	3.60	3.21	2.89	2.91	3.18
December.....	3.71	3.52	3.59	3.37	3.18	3.47
January.....	4.34	4.29	4.64	4.73	4.77	4.55
February.....	5.39	6.07	6.65	6.49	6.17	6.15
March.....	3.35	3.01	3.74	3.38	4.89	3.67
April.....	1.51	2.50	2.21	2.18	2.38	2.16
May.....	2.41	2.15	1.89	2.05	1.77	2.05
June.....	4.59	4.98	4.90	4.49	4.44	4.68
July.....	1.22	1.19	1.27	1.05	1.91	1.33
August.....	3.45	3.34	3.00	3.35	3.73	3.37
September.....	3.85	3.04	3.64	3.28	3.66	3.49
Total.....	39.88	40.13	41.12	39.85	42.63	40.70*
Monthly Average	3.32	3.34	3.43	3.32	3.55	3.39

*Total of averages.

TABLE 2

MONTHLY AND YEARLY RAINFALL IN INCHES ON SCITUATE WATERSHED

Year	YEARS ENDED SEPTEMBER 30												Jan.-Dec.		
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total	Year	Total
1915-1916.....	2.75(e)	2.88	5.86	1.88	5.88	2.46	3.60	4.83	5.71	7.38	1.33	1.24	45.80	1916	42.56
1916-1917.....	2.61	2.34	3.30	3.96	2.18	4.91	2.70	4.15	4.54	1.51	6.13	2.66	40.99	1917	43.16
1917-1918.....	6.71	0.48	3.23	3.56	3.73	2.15	4.56	3.12	4.49	5.13	4.14	8.79	50.09	1918	47.09
1918-1919.....	1.07	2.60	3.75	4.89	3.42	6.05	4.31	5.99	3.65	5.47	6.65	6.07	53.92	1919	56.42
1919-1920.....	2.29	5.05	2.58	3.03	6.10	4.90	6.28	3.95	7.93	4.44	3.86	3.04	53.45	1920	55.81
1920-1921.....	1.34	5.85	5.09	3.46	3.06	3.72	5.45	3.73	4.30	6.80	2.97	2.53	48.30	1921	47.84
1921-1922.....	1.26	8.02	2.54	1.91	2.67	6.40	1.98	5.22	6.34	8.36	9.09	5.35	59.14	1922	54.76
1922-1923.....	2.92	1.41	3.11	6.78	1.82	3.73	5.92	1.48	4.93	2.78	2.35	2.15	39.38	1923	48.39
1923-1924.....	5.67	5.68	5.10	4.49	2.92	2.80	6.12	3.66	1.49	1.72	5.85	5.28	50.78	1924	39.15
1924-1925.....	0.21	2.23	2.38	4.41	2.22	4.76	2.85	2.72	2.36	6.14	1.70	2.96	34.94	1925	44.45
1925-1926.....	4.32	4.83	5.18	3.26	6.10	3.73	2.46	2.27	1.74	3.80	3.94	1.89	43.52	1926	43.33
1926-1927.....	5.04	5.55	3.55	2.98	3.31	1.59	2.56	3.41	3.36	3.99	8.55	2.61	46.50	1927	52.45
1927-1928.....	5.24	9.22	5.63	2.72	4.32	2.70	5.43	1.45	3.91	5.06	5.50	4.80	55.98	1928	45.59
1928-1929.....	3.99	2.50	3.21	5.20	4.89	3.92	7.56	3.47	2.27	2.06	2.93	1.35	43.35	1929	43.95
1929-1930.....	3.09	3.06	4.15	2.86	2.88	3.23	2.03	2.74	3.05	3.33	3.00	1.35	34.77	1930	35.58
1930-1931.....	3.36	4.65	3.10	3.55	2.57	6.37	3.36	4.19	6.31	3.74	5.96	1.97	49.13	1931	44.43
1931-1932.....	2.22	1.03	3.16	6.16	2.38	6.16	1.97	2.57	2.75	2.57	6.44	11.75	49.16	1932	58.60
1932-1933.....	6.63	7.13	2.09	2.02	3.81	6.55	6.18	3.76	4.04	2.00	3.60	7.56	55.37	1933	48.13
1933-1934.....	3.41	1.48	3.72	3.87	4.53	4.03	5.24	3.98	4.79	2.20	3.89	7.37	48.51	1934	51.14
1934-1935.....	3.25	4.44	3.55	7.24	3.09	1.93	4.76	2.27	5.12	4.10	1.42	3.59	44.76	1935	41.30
1935-1936.....	1.04	5.86	0.88	8.81	4.16	9.31	3.80	1.98	2.98	2.63	3.28	7.72	52.45	1936	57.75
1936-1937.....	2.00	1.25	9.83	5.02	2.45	4.09	5.42	3.05	3.40	1.58	6.47	4.19	48.75	1937	50.58
1937-1938.....	3.92	8.10	2.89	5.29	2.91	2.70	2.60	4.17	8.62	11.49	3.10	6.76	62.55	1938	57.83
1938-1939.....	2.64	3.91	3.64	3.08	5.06	5.86	4.53	0.94	2.95	1.20	6.52	3.47	43.80	1939	44.17
1939-1940.....	5.76	1.40	3.40	2.82	5.97	4.04	6.00	5.76	2.45	4.41	2.01	2.63	46.65	1940	47.18
1940-1941.....	2.00	6.81	2.28	3.12	3.37	2.97	1.36	3.16	4.92	5.90	4.00	0.20	40.09	1941	37.88
1941-1942.....	1.75	3.35	3.78	4.95	3.30	8.35	0.89	2.80	3.88	5.38	4.32	1.94	44.69	1942	51.98
1942-1943.....	4.26	5.52	6.39	3.56	1.95	3.68	3.90	3.87	1.99	3.41	2.15	1.30	41.98	1943	36.84
1943-1944.....	6.38	3.43	1.22	1.79	2.50	5.05	4.11	1.35	3.75	1.74	2.01	11.03	44.36	1944	48.82
1944-1945.....	2.71	8.45	4.33	3.45	5.79	2.13	3.36	4.89	5.17	2.74	3.06	2.84	48.92	1945	52.25
1945-1946.....	2.21	9.03	7.58	3.82	3.81	1.42	2.37	4.92	3.31	2.49	11.48	3.69	56.13	1946	43.01
1946-1947.....	0.48	1.32	3.90	2.98	2.60	3.85	5.40	3.37	4.10	4.86	2.91	4.02	39.79	1947	47.68
1947-1948.....	3.26	6.42	3.91	7.14	2.57	4.26	3.97	9.36	4.20	3.73	3.14	1.59	53.55	1948	55.70
1948-1949.....	4.86	7.43	3.45	4.38	3.62	2.47	4.65	4.03	0.10	1.24	6.07	3.49	45.79	1949	38.58
1949-1950.....	2.27	3.47	2.79	3.68	4.62	3.99	3.68	3.51	2.93	1.62	5.04	2.03	39.63	1950	45.11

1950-1951.....	2.23	7.21	4.57	4.95	4.48	5.91	3.97	5.20	2.71	3.36	3.08	2.41	50.08	1951	55.38
1951-1952.....	4.14	9.64	5.53	4.88	4.81	4.13	4.41	3.97	3.16	1.20	7.33	2.21	55.41	1952	45.26
1952-1953.....	1.94	3.02	4.20	7.38	4.64	9.33	7.54	3.24	1.67	4.27	2.94	2.74	52.91	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	4.13	1.56	3.98	53.15	1956	49.06
1956-1957.....	2.96	4.92	5.46	2.90	2.46	3.33	5.01	1.55	0.72	0.96	1.58	1.98	33.43	1957	36.13
1957-1958.....	3.07	5.50	7.47	8.46	4.50	5.46	7.55	3.84	2.69	7.04	4.58	6.12	66.28	1958	58.88
1958-1959.....	3.83	3.03	1.78	2.56	4.12	7.13	4.41	1.15	5.55	6.74	2.27	0.57	43.14	1959	53.82
1959-1960.....	8.37	5.35	5.60	3.59	5.65	3.27	3.06	4.49	1.15	4.86	2.55	3.10	56.04	1960	47.42
1960-1961.....	3.58	2.86	4.26	3.24	3.48	4.27	5.92	5.65	2.25	3.01	4.02	9.43	51.97	1961	50.52
1961-1962.....	2.60	3.18	3.47	4.55	6.15	3.67	2.16	2.05	4.68	1.33	3.37	3.49	40.70	1962	47.58
47 Years Average.....	3.53	4.64	4.04	4.13	3.82	4.45	4.23	3.54	3.63	3.81	4.47	4.13	48.42*	Avg.	48.51
47 Years Maximum.....	11.48	9.64	9.83	8.81	6.15†	9.33	7.56	9.36	8.62	11.49	12.75	11.75	66.28	Max.	61.10
47 Years 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. †New maximum for February.

TABLE 3

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

Year	YEARS ENDED SEPTEMBER 30												Jan.-Dec.		
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total	Year	Total
1915-1916.....	0.75(e)	1.24(e)	3.03(e)	2.50	3.70	3.99	4.64	3.69	3.42	2.74	1.09	0.42	31.21	1916	28.25
1916-1917.....	0.51	0.58	0.97	1.91	1.30	4.29	3.05	2.79	2.18	0.79	0.71	0.63	19.71	1917	22.41
1917-1918.....	1.79	1.59	1.38	1.83	4.04	3.17	3.40	2.24	1.24	0.47	0.82	1.81	23.78	1918	23.75
1918-1919.....	1.02	1.34	2.37	3.81	2.27	5.01	4.43	3.86	1.27	1.35	0.91	3.33	30.97	1919	32.65
1919-1920.....	1.45	2.25	2.71	1.19	1.69	9.60	5.10	3.73	4.15	1.38	0.79	0.34	34.38	1920	33.29
1920-1921.....	0.37	1.73	3.22	2.79	1.69	4.19	3.68	2.85	0.95	2.56	0.93	0.31	25.27	1921	24.52
1921-1922.....	0.24	1.65	2.68	1.13	1.80	4.81	3.92	3.50	2.39	3.50	3.59	4.39	33.60	1922	33.32
1922-1923.....	1.66	1.26	1.37	4.16	2.46	6.10	4.06	2.68	1.15	0.64	0.40	0.25	26.19	1923	29.75
1923-1924.....	1.27	2.01	4.57	4.52	1.88	3.43	5.70	3.38	1.05	0.20	0.56	0.68	29.25	1924	23.31
1924-1925.....	0.49	0.45	0.97	0.91	3.65	3.41	2.46	1.46	0.52	0.58	0.39	0.32	15.61	1925	19.04
1925-1926.....	0.61	1.48	3.25	2.23	3.11	4.38	3.00	1.70	0.62	0.40	0.42	0.17	21.37	1926	21.03
1926-1927.....	0.76	2.15	2.09	3.34	2.64	3.05	1.71	2.03	1.44	0.32	1.59	0.64	21.76	1927	30.14
1927-1928.....	1.95	6.73	4.70	2.62	3.76	2.86	3.18	2.05	1.15	1.08	1.17	0.80	32.05	1928	23.03
1928-1929.....	1.21	1.16	1.99	4.02	3.65	5.56	6.09	3.56	0.48	0.06	0.07	-0.09	27.76	1929	25.18
1929-1930.....	0.07	0.53	1.18	1.96	2.38	2.74	1.84	0.88	0.42	0.09	0.04	-0.11	12.02	1930	11.82
1930-1931.....	0.12	0.63	0.83	1.56	2.11	5.95	3.21	3.10	2.97	0.69	0.85	0.10	22.12	1931	21.67
1931-1932.....	0.07	0.15	0.91	3.35	2.16	4.10	3.08	1.35	0.39	0.07	0.35	3.27	19.25	1932	30.15
1932-1933.....	3.48	6.29	2.26	2.24	2.70	6.28	6.88	1.93	1.57	0.17	0.25	1.52	35.57	1933	27.13
1933-1934.....	0.95	0.82	1.82	3.78	1.18	5.48	6.08	2.88	1.47	0.08	0.14	1.40	26.08	1934	28.94
1934-1935.....	1.33	1.91	3.21	4.78	2.83	4.22	4.05	1.71	1.78	0.62	-0.14	0.26	26.56	1935	21.82
1935-1936.....	-0.13	1.09	0.75	3.94	1.93	11.51	4.45	1.59	0.44	0.03	-0.02	0.82	26.40	1936	31.64
1936-1937.....	0.46	0.43	6.06	4.59	2.77	3.34	3.79	2.52	0.75	0.02	0.60	0.57	25.90	1937	27.16
1937-1938.....	0.79	4.17	3.25	4.15	2.99	2.99	2.29	1.84	2.85	6.93	1.32	1.66	35.23	1938	33.76
1938-1939.....	1.22	1.90	3.62	2.11	4.12	5.24	4.90	1.08	0.31	-0.24	0.22	0.09	24.57	1939	21.35
1939-1940.....	0.63	1.35	1.54	2.03	1.51	4.86	6.89	3.17	1.65	0.84	-0.14	-0.04	24.29	1940	23.98
1940-1941.....	-0.07	1.63	1.65	1.53	2.88	2.42	1.65	1.16	1.33	0.54	0.10	-0.41	14.41	1941	12.43
1941-1942.....	-0.15	0.52	0.86	1.87	2.54	7.14	1.75	1.06	0.59	0.86	0.26	-0.17	17.13	1942	22.77
1942-1943.....	0.45	1.86	4.56	2.45	3.46	4.40	2.68	3.01	0.36	0.02	-0.16	-0.22	22.87	1943	17.97
1943-1944.....	0.60	0.95	0.42	0.73	1.23	3.24	3.53	1.08	0.43	-0.26	-0.31	1.73	13.37	1944	18.61
1944-1945.....	0.50	3.16	3.55	2.91	2.58	5.61	2.15	3.10	1.26	0.15	-0.12	-0.15	24.70	1945	24.02
1945-1946.....	0.06	1.88	4.59	3.93	2.98	3.70	1.43	2.50	1.65	0	2.35	0.56	25.63	1946	21.08
1946-1947.....	0.49	0.30	1.19	2.16	1.52	4.01	3.31	2.86	1.09	0.53	0.12	0.31	17.89	1947	20.47
1947-1948.....	0.23	2.94	1.39	1.55	3.15	7.16	3.76	5.25	3.12	0.56	0.15	-0.21	29.05	1948	29.08
1948-1949.....	0.35	2.24	2.00	3.57	3.22	2.92	3.20	1.78	-0.02	-0.26	0.02	0.09	19.11	1949	16.40
1949-1950.....	0.05	0.57	1.26	2.03	2.42	4.16	3.01	2.20	1.00	-0.11	0.22	-0.02	16.79	1950	19.39

1950-1951.....	0.04	1.85	2.59	3.24	4.95	4.36	4.30	2.70	1.21	0.14	0.07	-0.07	25.38	1951	30.16
1951-1952.....	0.34	4.62	4.30	4.24	3.30	5.02	2.97	2.46	0.98	-0.35	0.53	-0.20	28.21	1952	20.27
1952-1953.....	-0.20	0.37	1.15	4.61	4.35	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	3.65	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	5.56	1.50	3.27	4.09	4.57	6.57	1.98	0.96	0.37	-0.22	0.05	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
1957-1958.....	0.06	0.52	2.40	6.59	2.69	6.03	6.89	3.88	0.83	0.35	0.86	1.31	32.91	1958	35.65
1958-1959.....	2.05	1.85	1.83	1.65	2.58	5.86	4.52	1.45	1.23	2.09	0.07	-0.23	24.95	1959	26.29
1959-1960.....	1.17	2.18	4.40	3.29	5.09	3.15	4.01	2.19	0.35	0.38	0.00	1.54	27.75	1960	25.51
1960-1961.....	0.98	2.11	2.42	2.21	3.63	4.97	4.75	3.63	1.30	0.25	0.20	2.30	28.80	1961	27.93
1961-1962.....	1.28	1.53	1.83	4.32	1.66	5.24	3.61	1.53	0.98	-0.09	0.04	0.07	22.01	1962	24.34
47 Years Average.....	0.86	1.88	2.51	2.86	2.79	4.73	3.91	2.44	1.20	0.65	0.55	0.74	25.12*	Avg.	25.13
47 Years Maximum.....	7.22	6.73	6.06	6.59	5.09	11.51	6.89	5.25	4.15	6.93	4.04	4.39	35.92	Max.	35.65
47 Years 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 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.....	27.3(e)	43.0(e)	51.7(e)	133.0	62.9	162.2	128.9	76.4	59.9	37.1	82.0	33.9	68.1	1916	66.4
1916-1917.....	19.5	24.8	29.4	48.2	59.6	87.4	113.0	67.2	48.0	52.3	11.6	23.7	48.1	1917	51.9
1917-1918.....	26.7	33.2	42.7	51.4	108.3	147.4	74.6	71.8	27.6	9.2	19.8	20.6	47.5	1918	50.4
1918-1919.....	95.3	51.5	63.2	77.9	66.4	82.8	102.8	64.4	34.8	24.7	13.7	54.8	57.4	1919	57.9
1919-1920.....	63.3	44.6	105.0	39.3	27.7	195.9	81.2	94.4	52.3	31.1	20.5	11.2	64.3	1920	59.6
1920-1921.....	27.6	29.6	63.3	80.6	55.2	112.6	67.5	76.4	22.1	37.6	31.3	12.2	52.3	1921	51.2
1921-1922.....	19.0	20.6	105.5	59.2	67.4	75.2	198.0	67.0	37.7	41.9	39.5	82.0	56.8	1922	60.8
1922-1923.....	56.8	89.4	44.0	61.4	135.2	163.5	68.6	181.1	23.3	23.0	17.0	11.6	66.5	1923	61.5
1923-1924.....	22.4	35.4	89.6	100.7	64.4	122.5	93.1	92.3	70.5	11.6	9.6	12.9	57.6	1924	59.5
1924-1925.....	233.3	20.2	40.8	20.6	164.4	71.6	86.3	53.7	22.0	9.4	22.9	10.8	44.7	1925	42.8
1925-1926.....	14.1	30.6	62.7	68.4	51.0	117.4	122.0	74.9	35.6	10.5	10.6	9.0	49.1	1926	48.5
1926-1927.....	15.1	38.7	58.9	112.1	79.8	191.8	66.8	59.5	42.8	8.0	18.6	24.5	46.8	1927	57.5
1927-1928.....	37.2	73.0	83.5	96.3	87.0	105.9	58.6	141.4	29.4	21.3	21.3	16.7	57.2	1928	50.5
1928-1929.....	30.3	46.4	62.0	77.3	74.6	141.8	80.6	102.6	21.1	2.9	2.4	-6.7	64.0	1929	57.3
1929-1930.....	2.3	17.3	28.4	68.5	82.6	84.8	90.6	32.1	13.8	2.7	1.3	-8.1	34.6	1930	33.2
1930-1931.....	3.6	13.5	26.8	43.9	82.1	93.4	95.5	74.0	47.1	18.4	14.3	5.1	45.0	1931	48.8
1931-1932.....	3.2	14.6	28.8	54.4	90.8	66.6	156.3	52.5	14.2	2.7	5.4	27.8	39.2	1932	51.4
1932-1933.....	52.5	88.2	108.1	110.9	70.9	95.9	111.3	51.3	38.9	8.5	6.9	20.1	64.2	1933	56.4
1933-1934.....	27.9	55.4	48.9	97.7	26.0	136.0	116.0	72.4	30.7	3.6	3.6	19.0	53.8	1934	56.6
1934-1935.....	40.9	43.0	90.4	66.0	91.6	218.6	85.1	75.3	34.8	15.1	-9.8	7.2	59.3	1935	52.8
1935-1936.....	-12.5	18.6	85.2	44.7	46.4	123.6	117.1	80.3	14.8	1.1	-0.6	10.6	50.3	1936	54.8
1936-1937.....	23.0	34.4	61.6	91.4	113.1	81.7	69.9	82.6	22.0	1.3	9.3	13.6	53.1	1937	53.7
1937-1938.....	20.2	51.5	112.5	78.4	102.7	110.7	88.1	44.1	33.1	60.3	42.6	24.6	56.3	1938	58.4
1938-1939.....	46.2	48.6	99.4	68.5	81.4	89.4	108.2	114.9	10.5	-20.0	3.4	2.6	56.1	1939	48.3
1939-1940.....	10.9	96.4	45.3	72.0	25.3	120.3	114.8	55.0	67.3	19.0	-7.0	-1.5	52.1	1940	50.8
1940-1941.....	-3.5	23.9	72.4	49.0	87.4	81.5	121.3	36.7	27.0	9.2	2.5	-205.0	35.9	1941	32.8
1941-1942.....	-8.6	15.5	22.8	37.8	77.0	85.5	196.6	37.8	15.2	16.0	6.0	-8.8	38.3	1942	43.8
1942-1943.....	10.6	33.7	71.4	68.8	177.4	119.6	68.7	77.8	18.1	0.6	-7.4	-16.9	54.5	1943	48.8
1943-1944.....	9.4	27.7	34.4	40.8	49.2	64.2	85.9	80.0	11.5	-14.9	-15.4	15.7	30.1	1944	38.1
1944-1945.....	18.4	37.4	82.0	84.3	44.6	263.4	64.0	63.4	24.4	5.5	-3.9	-5.3	50.5	1945	46.0
1945-1946.....	2.7	20.8	60.6	102.9	78.2	260.6	60.3	50.8	49.8	0	20.5	15.2	45.7	1946	49.0
1946-1947.....	102.1	22.7	30.5	72.5	58.5	104.2	61.3	84.9	26.6	10.9	4.1	7.7	45.0	1947	42.9
1947-1948.....	7.0	45.8	35.5	21.7	122.6	168.1	94.7	56.1	74.3	15.0	4.8	-13.2	54.2	1948	52.2
1948-1949.....	7.2	30.1	58.0	81.5	89.0	118.2	68.8	44.2	-20.0	-21.0	0.3	2.6	41.7	1949	42.5
1949-1950.....	2.2	16.4	45.2	55.2	52.4	104.3	81.8	62.7	34.1	-6.8	4.4	-1.0	42.4	1950	43.0

1950-1951.....	1.8	25.6	56.7	65.4	110.5	73.8	108.3	51.9	44.6	4.2	2.3	-2.9	50.7	1951	54.5
1951-1952.....	8.2	47.9	77.8	86.9	68.6	121.5	67.3	61.7	31.0	-29.2	7.2	-9.0	50.9	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	19.6	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	-14.1	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
1957-1958.....	2.0	9.5	32.1	77.9	59.8	110.4	91.3	101.0	30.9	12.1	18.8	21.4	49.7	1958	60.5
1958-1959.....	53.5	61.1	102.8	64.5	62.6	82.2	102.5	126.1	22.2	31.0	3.1	-40.4	57.8	1959	48.8
1959-1960.....	14.0	40.7	78.6	91.6	90.1	96.3	131.0	48.8	30.4	7.8	-0.1	19.0	49.6	1960	53.8
1960-1961.....	27.4	73.8	56.8	68.2	105.7	116.4	80.2	64.2	57.8	8.3	5.0	24.4	55.4	1961	55.3
1961-1962.....	49.2	48.1	52.7	94.9	27.0	142.8	167.1	74.6	20.9	-6.8	1.2	2.0	54.1	1962	51.1
47 Years Average.....	24.4	40.5	62.1	69.2	73.0	106.3	92.4	68.9	33.1	17.1	12.3	17.9	51.9	Avg.	51.8
47 Years 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
47 Years Minimum.....	-12.5	9.5	22.8	20.6	25.3	37.8	58.6	32.1	-25.0	-42.7	-24.1	-205.0	30.1	Min.	32.8

(e Estimated.

TABLE 5

SCITUATE WATERSHED

(92.8 Square Miles)

Statistics of Storage for Year Ended September 30, 1962

1 Regulating Reservoir	2 Westconnaug Reservoir		3 Barden Reservoir		4 Moswansicut Reservoir		5 Ponaganset Reservoir		6 Scituate Reservoir		Total 1-6
	Elev.	Avail. Storage M. G.	Elev.	Avail. Storage M. G.	Elev.	Avail. Storage M. G.	Elev.	Avail. Storage M. G.	Elev.	Avail. Storage M. G.	% of Total Storage M. G.
1961-1962											
October.....	285.62	431	345.23	863	301.93	718	633.75	747	279.99	32,369	35,572
November.....	285.55	425	344.15	778	301.90	715	633.29	711	279.76	32,126	35,199
December.....	285.59	428	345.40	877	302.00	725	633.75	747	279.36	31,696	34,943
January.....	285.61	430	345.38	875	302.02	727	633.78	749	278.81	31,110	34,359
February.....	285.60	429	345.15	857	302.03	728	633.73	745	280.96	33,350	36,531
March.....	285.65	433	345.55	889	302.05	730	633.75	747	279.87	32,242	35,440
April.....	285.90	454	345.90	917	302.20	746	634.15	778	283.34	35,894	39,282
May.....	285.62	431	345.23	863	302.00	725	633.60	735	284.04	36,645	39,859
June.....	285.60	429	344.60	813	301.93	718	633.55	731	284.15	36,768	39,917
July.....	285.56	426	345.30	869	301.90	715	633.55	731	283.45	36,011	39,213
August.....	285.22	399	345.17	859	301.67	692	633.20	704	281.29	33,700	36,797
September.....	284.60	353	345.20	861	301.50	675	633.06	694	279.08	31,388	34,401
Maximum for Year	286.20	479	346.15	937	302.20	746	634.15	778	284.43	37,082	40,279
Minimum for Year	283.84	299	342.80	676	301.32	657	632.95	685	277.12	29,420	32,384
1. Regulating Reservoir—Spillway Elev.	285.50;		285.50;		285.50;		285.50;		285.50;		421 M.G.
2. Westconnaug	"	"	454.17;	"	453	"	453	"	"	"	453
3. Barden	"	"	345.10;	"	853	"	853	"	"	"	853
4. Moswansicut	"	"	301.90;	"	1,781	"	1,781	"	"	"	715
5. Ponaganset	"	"	633.05;	"	742	"	742	"	"	"	693
Total 1-5 Reservoir—Spillway Elev.	284.01;		284.01;		37,011	"	37,011	"	"	"	*3,135 M.G.
6. Scituate											36,611
Total 1-6											+39,746 M.G.

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

TABLE 6
SCITUATE WATERSHED
(92.8 Square Miles)

Draft and Yield for the Year Ended September 30, 1962

1961-1962	DRAFT FROM SCITUATE RESERVOIR Million Gallons						WATERSHED YIELD Million Gallons		
	To River Over Spillway	Below Gainer Dam Through Gatehouse	Total	To Water Purification Works	For Month	Total Average per Day	For Month	Average per Day	
								1961-1962	47-Year Mean 1916-1962
October.....	0	942.65	942.65	1,501.58	2,444.23	78.85	2,071.23	66.81	44.74
November.....	0	1,315.40	1,315.40	1,407.65	2,723.05	90.77	2,467.05	82.24	101.07
December.....	0	2,108.14	2,108.14	1,432.18	3,540.32	114.20	2,956.32	95.37	130.58
January.....	0	3,383.43	3,383.43	1,419.63	4,803.06	154.94	6,975.06	225.00	148.79
February.....	0	2,481.77	2,481.77	1,283.25	3,765.02	134.47	2,674.02	95.50	160.70
March.....	0	3,146.23	3,146.23	1,456.50	4,602.73	148.48	8,444.73	272.41	246.07
April.....	25.65	3,765.00	3,790.65	1,452.21	5,242.86	174.76	5,819.86	194.00	210.20
May.....	49.53	690.08	739.61	1,670.17	2,409.78	77.73	2,467.78	79.61	126.94
June.....	1.25	478.51	479.76	1,812.22	2,291.98	76.40	1,587.98	52.93	64.51
July.....	0	487.03	487.03	1,785.23	2,272.26	73.30	—143.74	—4.64	33.82
August.....	0	512.98	512.98	1,951.90	2,464.88	79.51	68.88	2.22	28.61
September.....	0	451.48	451.48	1,678.95	2,130.43	71.01	113.43	3.78	39.78
For Year.....	†76.43	19,762.70	19,839.13	18,851.47	38,690.60	106.00	35,502.60	97.27	110.92

†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 and 1935.....	0	755,000	255,000	0	36,000	136,000	4,000	505,000	204,000	3,000	0	1,898,000
1936.....	0	453,700	111,000	0	14,400	0	0	20,000	15,000	26,000	0	640,100
1937.....	0	481,100	0	0	0	0	0	213,200	0	0	0	694,300
1938.....	0	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	57,750	0	0	0	0	999,881
1941.....	0	51,000	295,650	0	0	0	0	34,350	0	0	0	381,000
1942.....	0	0	308,120	0	0	0	0	0	0	0	0	308,120
1943.....	0	0	0	0	0	0	0	0	0	0	0	0
1944.....	0	0	0	0	0	0	0	0	0	0	0	0
1945.....	0	0	0	0	0	0	0	0	0	0	0	0
1946.....	0	0	0	0	0	0	0	0	0	0	0	0
1947.....	0	0	0	0	0	0	0	0	0	0	0	0
1948.....	0	0	0	0	0	0	0	0	0	0	0	0
1949.....	0	0	0	0	0	0	0	0	0	0	0	0
1950.....	0	0	0	0	0	0	0	0	0	0	0	0
1951.....	0	0	1,500	12,000	0	0	0	0	0	0	0	13,500
1952.....	0	20,000	0	0	0	0	0	10,000	0	0	10,000	40,000
1953.....	0	10,000	0	0	0	0	0	6,000	0	0	0	16,000
1954.....	2,000	0	0	2,000	0	0	0	0	0	0	6,000	10,000
1955.....	0	0	5,000	0	0	0	0	0	0	0	5,000	10,000
1956.....	0	0	5,000	0	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
1958.....	0	2,700	2,000	0	0	0	0	0	0	0	0	4,700
1959.....	0	0	0	0	0	0	0	0	0	0	0	0
1960.....	140	540	6,874	784	405	0	0	3,401	49	0	3,461	15,654
1961.....	0	0	2,300	144	0	0	0	0	0	2,000	0	4,444
1962.....	0	0	5,000	0	0	0	0	150	0	2,000	2,000	9,150
TOTALS.....	2,140	2,638,427	2,809,965	14,928	101,221	136,000	121,750	821,101	219,049	33,000	26,461	6,924,042

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 Narragansett Electric Co.	Payment Received
(Period June 20-30, 1930).....	87,000	6,470	75,100	\$ 300.40
July 1930—June 1931.....	3,023,000	152,940	2,758,340	20,000.00
July 1931—June 1932.....	4,201,500	158,070	3,980,570	19,600.00
July 1932—June 1933.....	7,024,900	155,210	6,697,656	26,790.62
July 1933—June 1934.....	5,080,900	152,420	4,837,371	19,349.48
July 1934—June 1935.....	7,102,900	174,710	6,756,101	27,024.40
July 1935—June 1936.....	5,761,200	173,530	5,394,176	21,576.70
July 1936—June 1937.....	5,626,000	174,110	5,262,807	21,051.23
July 1937—June 1938.....	6,438,300	156,710	6,069,927	24,279.71
July 1938—June 1939.....	8,915,000	159,860	8,457,980	33,831.92
July 1939—June 1940.....	4,681,100	231,850	4,329,115	17,316.46
July 1940—June 1941.....	3,291,200	185,540	2,982,991	16,000.00
July 1941—June 1942.....	2,585,300	194,250	2,322,916	15,600.00
July 1942—June 1943.....	4,655,800	170,520	4,372,359	17,489.44
July 1943—June 1944.....	2,290,100	183,250	2,096,811	14,597.25
July 1944—June 1945.....	4,146,200	187,080	3,879,622	15,518.49
July 1945—June 1946.....	4,754,100	200,200	4,460,596	17,343.70
July 1946—June 1947.....	3,494,400	251,270	3,224,049	13,600.00
July 1947—June 1948.....	5,576,900	249,940	5,313,209	21,252.84
July 1948—June 1949.....	3,790,500	264,160	3,521,404	14,085.62
July 1949—June 1950.....	1,972,200	303,460	1,548,000	9,288.00
July 1950—June 1951.....	4,965,900	322,220	4,476,900	26,861.40
July 1951—June 1952.....	6,381,400	329,080	5,836,700	35,020.20
July 1952—June 1953.....	4,993,400	351,080	4,429,900	26,579.40
July 1953—June 1954.....	3,945,700	389,050	3,389,000	20,334.00
July 1954—June 1955.....	6,776,900	422,250	6,111,000	36,666.00
July 1955—June 1956.....	9,521,700	480,300	8,747,900	52,487.40
July 1956—June 1957.....	2,195,400	466,480	1,608,100	9,648.60
July 1957—June 1958.....	4,141,000	541,760	3,432,900	**20,597.40
July 1958—June 1959.....	4,987,600	504,310	4,297,300	25,783.80
July 1959—June 1960.....	5,754,000	515,280	5,078,000	30,468.00
July 1960—June 1961.....	4,912,500	583,050	4,159,400	24,956.40
July 1961—June 1962.....	3,998,900	614,800	3,267,600	19,605.60

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

**Involves net exchange for portion of previous year.

TABLE 9
WATER PURIFICATION WORKS
Operating Statistics for Year Ended September 30, 1962

1961-1962	Influent Aerator — Hours Operated	Plant Influent Mil. Gals.		Water Filtered Mil. Gals.		Wash Water Mil. Gals.		Plant Effluent Mil. Gals.		Plant Effluent Flow — Hours	Number of Filters in Operation	
		Total	Average per Day	Total	Average per Day	Total	Average per Day	Total	Average per Day		Max.	Min. Avg.
October.....	743.5	1,501.582	48.438	1,362.844	43.963	9,797	0.316	1,353.047	43.647	745.0	12.0	3.0 7.8
November.....	720.0	1,407.649	46.922	1,269.666	42.322	10,726	0.358	1,258.940	41.965	720.0	11.5	3.0 7.5
December.....	744.0	1,432.175	46.199	1,318.940	42.546	10,854	0.350	1,308.086	42.196	744.0	14.0	2.0 8.4
January.....	743.0	1,419.628	45.794	1,324.320	42.720	8,975	0.290	1,315.345	42.430	744.0	13.0	4.5 9.0
February.....	672.0	1,283.247	45.830	1,182.887	42.239	8,600	0.307	1,174.087	41.932	672.0	12.5	4.0 9.0
March.....	744.0	1,456.496	46.984	1,323.137	42.682	8,939	0.288	1,314.198	42.393	744.0	12.5	3.0 8.2
April.....	719.0	1,452.209	48.407	1,290.262	43.009	8,172	0.272	1,282.090	42.736	719.0	12.0	3.5 7.6
May.....	744.0	1,670.167	53.876	1,451.006	46.307	10,774	0.348	1,440.232	46.459	739.2	14.0	3.0 8.3
June.....	720.0	1,812.218	60.407	1,602.292	53.410	10,734	0.358	1,591.558	53.052	720.0	14.0	3.0 7.6
July.....	744.0	1,785.232	57.588	1,599.020	51.581	7,428	0.240	1,591.592	51.342	744.0	12.5	2.0 7.3
August.....	744.0	1,951.904	62.965	1,736.322	56.010	9,585	0.309	1,726.737	55.701	744.0	14.0	2.0 7.9
September.....	720.0	1,678.945	55.965	1,459.872	48.662	8,312	0.277	1,451.560	48.385	720.0	13.5	2.5 8.0
Totals.....	8,757.5	18,851.452	.....	16,920.368	.....	112,896	.....	16,807.472	.....	8,755.2	.....	.....
Average.....	729.8	.....	51.648	.....	46.357	.....	0.309	.....	46.048	729.6	.....	8.0

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

TABLE 9 (Continued)
WATER PURIFICATION WORKS
Operating Statistics for Year Ended September 30, 1962

1961-1962	Average Rate of Filtration per Filter M.G.D.	Number of Filters Washed		Ferri-Floc Used		Quicklime Used		Chlorine Used		Sodium Silicofluoride Used						
		Avg. Filter per Run	Average per Day Hours	Lbs.	Avg. per Day	Gr. per Gal.	Lbs.	Avg. per Day	Parts per Mil.	Lbs.	Avg. per Day	Parts per Mil.*				
October.....	5.64	69	2.2	84.96	112,477	3,628	0.52	140,600	4,535	0.66	4,526	146	0.41	17,724	572	0.94
November.....	5.65	75	2.5	76.00	122,511	4,084	0.61	119,052	3,968	0.59	4,174	139	0.40	16,323	544	0.94
December.....	5.08	90	2.9	74.80	124,413	4,013	0.61	120,315	3,881	0.59	4,344	140	0.40	17,025	549	0.94
January.....	4.73	91	2.9	70.20	123,454	3,982	0.61	117,610	3,794	0.58	4,351	140	0.40	17,152	553	0.94
February.....	4.71	92	3.3	68.55	133,754	4,777	0.73	119,222	4,258	0.65	3,992	143	0.41	15,400	550	0.95
March.....	5.21	99	3.2	78.22	161,791	5,219	0.78	149,223	4,814	0.72	4,378	141	0.40	17,407	562	0.95
April.....	5.66	84	2.8	90.40	142,261	4,742	0.69	140,176	4,673	0.68	4,259	142	0.40	16,940	565	0.95
May.....	5.68	85	2.7	76.84	149,101	4,810	0.62	149,433	4,820	0.63	4,777	154	0.40	19,005	613	0.95
June.....	7.07	83	2.8	62.63	197,488	6,583	0.76	175,971	5,866	0.68	5,264	175	0.40	20,953	698	0.95
July.....	7.10	57	1.8	92.39	194,421	6,272	0.76	176,160	5,683	0.69	5,299	171	0.41	20,318	655	0.92
August.....	7.10	73	2.4	82.52	193,214	6,233	0.70	186,982	6,032	0.67	5,736	185	0.40	21,751	702	0.91
September.....	6.09	62	2.1	95.30	148,551	4,952	0.62	166,785	5,560	0.70	4,843	161	0.40	18,263	609	0.91
Totals.....		960			1,803,436			1,761,529			55,943			218,261		
Average.....	5.77		2.6	78.13		4,941	0.67		4,826	0.65		153	0.40		598	0.94

Total filter hours for year, 70,356.78; average per day, 192.76
Average quantity of water filtered per filter per run, 18.78 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, 1962

Chemicals	Pounds of Chemicals Used Total	Lbs. per Day (Average)	Total Gallons of Water Treated	Cost of Chemicals	Pounds of Chemicals Used per 1,000,000 Gals. of Water Treated (Average)	Cost of Chemicals per 1,000,000 Gals. of Water Treated
Ferri-Floc.....	1,803,436	4,941	18,850,124,000	\$47,836.14	95.67	\$2.54
Quicklime.....	1,761,529	4,826	18,850,089,000	18,320.56	93.45	0.97
Chlorine.....	55,943	153	16,606,109,000	3,776.15	3.37	0.23
Sodium Silicofluoride.....	218,261	598	16,590,382,000	15,207.34	13.16	0.92
Totals.....	3,839,169	.....	.....	\$85,140.19	.....	\$4.66

Price of Ferri-Floc—From Oct. 1, 1961 to Sept. 30, 1962—\$53.05 per ton.

Price of Quicklime—From Oct. 1, 1961 to May 27, 1962—\$21.02 per ton; from May 28 to Sept. 30, 1962—\$20.47 per ton.

Price of Chlorine—From Oct. 1, 1961 to Sept. 30, 1962—\$0.0675 per pound.

Price of Sodium Silicofluoride—From Oct. 1, 1961 to Sept. 30, 1962—\$139.35 per ton.

TABLE 11
WATER PURIFICATION WORKS

*Chemical and Physical Characteristics of Water in Process of Filtration
Year Ended September 30, 1962

Monthly Averages	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
Alkalinity													
Raw.....	5.0	4.9	4.7	4.6	4.3	4.3	4.5	4.7	5.0	5.1	5.2	5.5	4.8
**Effluent.....	18.2	15.3	14.7	14.6	14.8	15.5	16.6	16.3	16.4	16.8	16.9	18.7	16.2
Tap.....	16.3	13.8	13.0	12.8	12.8	13.4	15.1	14.8	14.7	15.3	14.6	17.0	14.5
Hardness													
Raw.....	10	10	10	10	10	9	9	9	9	9	9	10	10
**Effluent.....	28	27	27	27	27	28	28	27	28	29	28	29	28
Tap.....	28	27	27	27	27	28	29	27	28	29	29	29	28
Hydrogen Ion Concentration													
Raw.....	6.2	6.6	6.6	6.4	6.2	6.1	6.4	6.3	6.1	6.1	6.0	6.2	6.3
Aerated Influent.....	4.5	4.3	4.4	4.3	4.1	4.2	4.2	4.2	4.1	4.2	4.2	4.5	4.3
Treated.....	10.4	10.4	10.4	10.3	10.3	10.3	10.4	10.3	10.3	10.4	10.3	10.5	10.4
Settled.....	10.3	10.3	10.3	10.2	10.2	10.2	10.3	10.2	10.2	10.3	10.2	10.3	10.3
Filtered.....	10.3	10.2	10.3	10.2	10.2	10.2	10.3	10.2	10.2	10.3	10.2	10.3	10.2
**Effluent.....	10.3	10.2	10.3	10.2	10.2	10.2	10.3	10.2	10.2	10.2	10.2	10.3	10.2
Tap.....	10.2	10.1	10.2	10.2	10.2	10.2	10.2	10.1	10.0	10.1	10.1	10.2	10.2
Free CO₂													
Raw.....	5.8	1.5	1.5	1.8	2.6	3.3	1.9	1.9	2.8	4.0	5.5	7.1	3.3
Aerated Influent.....	5.8	5.8	6.3	6.6	8.3	8.7	7.3	6.4	7.5	8.1	8.2	7.6	7.2
Phenolphthalein Alkalinity													
Treated.....	11.5	10.4	9.9	9.7	9.6	10.0	11.2	10.8	11.1	11.1	11.1	12.2	10.7
Settled.....	11.0	9.6	9.1	9.0	9.1	9.3	10.3	10.0	10.0	10.2	10.3	11.3	9.9
Filtered.....	10.6	9.3	9.0	9.0	9.0	9.2	10.3	9.9	9.9	10.1	10.2	11.2	9.8
**Effluent.....	10.7	9.4	9.0	8.9	9.0	9.2	10.3	10.0	9.9	10.1	10.2	11.1	9.8
Tap.....	8.2	7.0	6.5	6.5	6.5	6.7	7.6	7.4	7.5	7.6	7.6	8.4	7.3
Color													
Raw.....	16	12	10	11	13	13	12	12	11	11	10	17	12
**Effluent.....	5	6	5	5	6	6	6	6	5	5	5	5	5
Tap.....	5	5	5	5	6	5	5	5	5	5	4	5	5
Turbidity													
Raw.....	0.4	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.2
Settled.....	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.1	0.2	0.1
**Effluent.....	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Iron													
Raw.....	0.27	0.09	0.07	0.06	0.07	0.07	0.05	0.03	0.04	0.04	0.05	0.32	0.10
Settled.....	.26	.27	.36	.55	.65	.49	.29	.35	.27	.29	.24	.21	.35
**Effluent.....	.00	.00	.00	.00	.02	.01	.01	.00	.00	.00	.00	.00	.00
Tap.....	.01	.00	.00	.01	.02	.02	.01	.01	.01	.01	.01	.01	.01
Manganese													
Raw.....	0.18	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.02	0.19	0.04
Settled.....	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.03	.01
**Effluent.....	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Tap.....	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Fluoride													
Raw.....	0.15	0.12	0.12	0.12	0.14	0.15	0.15	0.14	0.15	0.14	0.14	0.15	0.14
**Effluent.....	.11	.11	.11	.11	.14	.14	.12	.13	.12	.12	.13	.12	.12
Tap.....	1.00	.98	.98	.99	.98	1.00	.99	.99	1.00	1.00	1.00	.99	.99
Temperature (°F.)													
Air (Average of Daily Maximum).....	64	50	37	36	33	45	60	69	80	81	81	71	59
Air (Average of Daily Minimum).....	44	33	22	15	13	23	34	43	54	55	57	46	37
Raw Water.....	56	50	39	33	34	36	43	50	51	52	52	53	46
Water on Filters.....	55	50	37	33	33	36	45	53	57	59	58	56	48
Tap.....	58	54	44	40	40	42	49	56	58	59	60	59	52

*Parts per million, except pH and Temperature.

**Before treatment with chlorine and sodium silicofluoride.

TABLE 12

WATER PURIFICATION WORKS

*Chemical and Physical Characteristics of Water in Various Brooks and Reservoirs
on Scituate Watershed

Year Ended September 30, 1962

Monthly Analyses	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
Color													
Ponaganset Reservoir	15	14	7	6	4	2	5	2	20	5	25	17	10
Coventry Brook	32	30	20	15	15	15	21	27	65	13	18	15	24
Wilbur Brook	92	45	28	28	25	32	40	60	90	70	**	**	51
Westconnaug Reservoir	24	15	10	13	13	10	13	15	35	7	13	12	15
Barden Reservoir	27	28	23	19	15	15	22	15	27	22	45	23	23
Cork Brook	25	18	11	11	10	13	17	17	50	10	**	**	18
Rush Brook	50	30	13	18	15	15	23	50	60	18	30	22	29
Huntinghouse Brook	32	22	13	12	15	13	18	23	50	12	**	**	21
Harrisdale Brook	28	23	15	12	13	13	17	18	40	15	18	15	19
Blanchard Brook	180	120	80	40	50	45	70	220	225	**	**	**	114
Moswansicut Pond	13	15	13	15	15	13	16	13	13	10	10	10	13
Regulating Reservoir	24	20	17	12	10	12	14	13	17	14	20	13	16
Quonapaug Brook	125	100	55	37	45	45	70	150	180	275	**	**	108
Hemlock Brook	80	70	25	25	15	33	35	25	23	20	24	27	34
Betty Pond Stream.....	20	23	10	6	20	7	12	11	17	20	**	**	15
Spruce Brook	58	56	22	18	25	23	30	50	85	55	**	**	42
Brandy Brook	80	90	35	30	35	27	50	55	100	25	22	18	47
Moswansicut—South	30	30	12	8	8	10	14	11	22	30	**	**	18
Windsor Brook	30	32	12	13	10	15	19	35	50	12	**	**	23
Paine Pond	30	30	20	11	18	10	17	17	30	5	10	**	18
Unnamed Brook—A	64	60	27	20	**	30	45	70	110	**	**	**	53
Unnamed Brook—B	10	12	6	7	7	8	12	12	18	**	**	**	10
Turbidity													
Ponaganset Reservoir	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.3	0.1	0.3	0.7	0.2
Coventry Brook	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.4	0.1	0.3	0.4	0.2
Wilbur Brook	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.3	0.6	0.2	**	**	0.2
Westconnaug Reservoir	0.2	0.1	0.2	0.2	0.1	0.2	0.1	0.2	0.6	0.2	0.3	0.3	0.2
Barden Reservoir	0.2	0.3	0.2	0.2	0.1	0.2	0.1	0.2	0.6	0.3	0.4	0.5	0.3
Cork Brook	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.2	0.5	0.1	**	**	0.2
Rush Brook	0.1	0.2	0.2	0.1	0.1	0.2	0.1	0.2	0.6	0.3	0.4	0.4	0.2
Huntinghouse Brook	0.1	0.2	0.1	0.1	0.0	0.1	0.1	0.3	0.6	0.1	**	**	0.2
Harrisdale Brook	0.2	0.3	0.3	0.1	0.0	0.2	0.1	0.1	0.8	0.2	0.2	0.3	0.2
Blanchard Brook	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.2	0.2	**	**	**	0.1
Moswansicut Pond	0.1	0.2	0.3	0.1	0.1	0.2	0.1	0.3	0.3	0.2	0.3	0.3	0.2
Regulating Reservoir	0.2	0.1	0.3	0.2	0.2	0.3	0.1	0.2	0.3	0.1	0.4	0.4	0.2
Quonapaug Brook	0.1	0.2	0.2	0.1	0.2	0.2	0.1	0.4	0.3	0.2	**	**	0.2
Hemlock Brook	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.3	0.2	0.1	0.5	0.2
Betty Pond Stream.....	0.3	0.3	0.2	0.1	0.2	0.1	0.2	0.3	0.4	0.2	**	**	0.2
Spruce Brook	0.1	0.1	0.3	0.1	0.1	0.2	0.1	0.4	0.3	0.3	**	**	0.2
Brandy Brook	0.3	0.4	0.3	0.2	0.1	0.2	0.1	0.3	0.3	0.3	0.3	0.3	0.3
Moswansicut—South	0.2	0.2	0.3	0.2	0.2	0.2	0.1	0.2	0.4	0.3	**	**	0.2
Windsor Brook	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.3	0.2	**	**	0.2
Paine Pond	0.2	0.2	0.3	0.2	0.1	0.1	0.2	0.1	0.4	0.2	0.4	**	0.2
Unnamed Brook—A	0.1	0.2	0.2	0.1	**	0.1	0.1	0.3	0.3	**	**	**	0.2
Unnamed Brook—B	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.3	**	**	**	0.2

*Parts per million.

**No sample obtained—Dry.

Note: Unnamed Brook A is just north of Scituate Town Dump. Unnamed Brook B is southwest 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, 1962

Monthly Analyses	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
Iron													
Ponaganset Reservoir	0.15	0.10	0.12	0.08	0.01	0.02	0.05	0.02	0.20	0.30	0.65	0.37	0.17
Coventry Brook .....	.12	.04	.07	.03	.01	.02	.01	.04	.13	.04	.05	.03	.05
Wilbur Brook .....	.60	.10	.13	.10	.07	.02	.08	.17	.50	.40	**	**	.22
Westconnaug Reservoir .....	.10	.07	.10	.06	.10	.04	.07	.10	.22	.20	.13	.12	.11
Barden Reservoir .....	.12	.20	.10	.03	.10	.02	.04	.05	.23	.60	1.00	.45	.25
Cork Brook .....	.10	.05	.05	.02	.03	.05	.02	.05	.20	.07	**	**	.06
Rush Brook .....	.20	.07	.10	.02	.13	.03	.07	.10	.50	.65	.60	.55	.25
Huntinghouse Brook .....	.12	.05	.04	.02	.05	.03	.05	.05	.20	.35	**	**	.10
Harrisdale Brook .....	.12	.06	.05	.05	.08	.02	.07	.10	.47	.40	.23	.12	.15
Blanchard Brook .....	.70	.25	.18	.12	.20	.06	.11	.30	1.20	**	**	**	.35
Moswansicut Pond .....	.06	.04	.03	.05	.03	.03	.01	.01	.07	.04	.04	.04	.04
Regulating Reservoir .....	.18	.12	.05	.05	.03	.02	.04	.04	.25	.40	.32	.20	.14
Quonapaug Brook .....	.60	.22	.17	.08	.20	.08	.08	.40	.95	1.75	**	**	.45
Hemlock Brook .....	.22	.18	.07	.06	.10	.10	.07	.08	.20	.25	.33	.43	.17
Betty Pond Stream .....	.05	.05	.05	.01	.25	.01	.05	.07	.20	.25	**	**	.10
Spruce Brook .....	.17	.08	.04	.03	.02	.02	.01	.06	.22	.20	**	**	.09
Brandy Brook .....	.38	.20	.18	.12	.10	.04	.13	.27	.60	.35	.20	.15	.23
Moswansicut—South .....	.40	.22	.16	.15	.07	.05	.20	.12	1.80	1.75	**	**	.49
Windsor Brook .....	.12	.05	.04	.05	.02	.02	.02	.03	.38	.06	**	**	.08
Paine Pond .....	.30	.07	.05	.04	.10	.01	.03	.08	.65	.08	.02	**	.13
Unnamed Brook—A .....	.18	.08	.06	.04	**	.01	.03	.07	.25	**	**	**	.09
Unnamed Brook—B .....	.05	.04	.02	.03	.01	.01	.01	.03	.08	**	**	**	.03
Manganese													
Ponaganset Reservoir	0.01	0.04	0.06	0.05	0.05	0.04	0.03	0.04	0.04	0.03	0.04	0.04	0.04
Coventry Brook .....	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Wilbur Brook .....	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00	**	**	.00
Westconnaug Reservoir .....	.00	.00	.00	.01	.00	.00	.00	.00	.01	.00	.01	.00	.00
Barden Reservoir .....	.00	.14	.00	.04	.00	.00	.01	.00	.01	.03	.03	.05	.03
Cork Brook .....	.00	.01	.01	.00	.00	.04	.00	.00	.01	.06	**	**	.01
Rush Brook .....	.06	.04	.01	.00	.00	.00	.00	.04	.00	.00	.03	.06	.02
Huntinghouse Brook .....	.00	.01	.02	.00	.00	.00	.00	.00	.00	.02	**	**	.01
Harrisdale Brook .....	.00	.03	.02	.00	.00	.00	.00	.01	.01	.00	.00	.00	.01
Blanchard Brook .....	.00	.00	.03	.02	.00	.00	.01	.00	.00	**	**	**	.01
Moswansicut Pond .....	.08	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.02	.01
Regulating Reservoir .....	.00	.00	.01	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00
Quonapaug Brook .....	.00	.00	.02	.00	.00	.00	.00	.00	.00	.00	**	**	.00
Hemlock Brook .....	.01	.06	.00	.03	.01	.02	.02	.02	.02	.00	.00	.03	.02
Betty Pond Stream .....	.00	.00	.00	.01	.03	.00	.01	.00	.00	.00	**	**	.01
Spruce Brook .....	.00	.00	.01	.01	.00	.00	.00	.00	.00	.00	**	**	.00
Brandy Brook .....	.01	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00
Moswansicut—South .....	.00	.02	.03	.01	.02	.00	.00	.04	.04	.05	**	**	.02
Windsor Brook .....	.01	.00	.03	.01	.00	.00	.00	.00	.00	.00	**	**	.01
Paine Pond .....	.00	.01	.04	.03	.04	.02	.02	.00	.00	.00	.03	**	.02
Unnamed Brook—A .....	.00	.00	.00	.00	**	.00	.00	.00	.00	**	**	**	.00
Unnamed Brook—B .....	.01	.03	.05	.03	.04	.01	.02	.00	.04	**	**	**	.03

*Parts per million.

**No sample obtained—Dry.

Note: Unnamed Brook A is just north of Scituate Town Dump. Unnamed Brook B is southwest 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, 1962

Monthly Averages	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
Hydrogen Ion Concentration													
Ponaganset Reservoir	6.3	5.8	5.0	4.9	4.8	4.8	4.9	5.1	5.2	5.5	5.2	5.7	5.3
Coventry Brook	6.3	6.2	6.2	6.3	6.3	6.1	6.1	6.3	6.3	6.6	6.5	6.7	6.3
Wilbur Brook	6.0	5.7	5.8	5.8	5.4	5.8	5.8	6.1	6.1	6.7	**	**	5.9
Westconnaug Reservoir	6.6	7.0	6.3	6.0	6.2	6.1	6.3	6.6	6.6	7.0	6.9	7.1	6.6
Barden Reservoir	6.1	6.5	6.2	5.7	5.7	5.7	6.0	6.0	6.5	6.6	6.4	6.8	6.2
Cork Brook	6.1	6.0	6.0	5.8	5.8	5.7	6.0	6.3	6.1	6.5	**	**	6.0
Rush Brook	6.4	6.4	6.2	5.6	5.9	6.0	6.2	6.4	6.2	6.5	6.3	6.5	6.2
Huntinghouse Brook	6.6	6.6	6.3	6.0	6.0	6.2	6.4	6.5	6.4	6.8	**	**	6.4
Harrisdale Brook	6.6	7.3	6.5	6.3	6.2	6.5	6.7	7.1	6.7	7.1	7.0	7.4	6.8
Blanchard Brook	5.8	5.8	5.4	5.4	5.1	5.6	5.6	5.6	5.7	**	**	**	5.6
Moswansicut Pond	6.6	7.1	6.6	6.2	6.3	6.5	6.6	6.7	6.7	6.9	6.8	7.2	6.7
Regulating Reservoir	6.8	8.0	6.6	6.2	6.1	6.3	6.7	6.8	7.2	7.1	7.2	7.2	6.9
Quonapaug Brook	5.9	6.2	5.8	5.5	5.2	5.8	5.8	6.1	5.9	6.8	**	**	5.9
Hemlock Brook	6.0	5.6	5.7	5.5	4.2	5.4	5.8	6.1	6.1	6.7	6.6	6.9	5.9
Betty Pond Stream.....	6.2	6.3	5.9	5.6	5.5	5.8	6.1	6.1	6.0	6.2	**	**	6.0
Spruce Brook	5.9	6.0	5.8	5.6	5.6	5.6	6.3	6.1	5.7	6.4	**	**	5.9
Brandy Brook	6.7	7.9	6.7	6.1	6.5	6.4	6.6	6.6	6.6	6.6	6.7	6.9	6.7
Moswansicut—South	6.6	10.3	6.5	6.2	6.1	6.6	6.6	6.6	6.5	6.5	**	**	6.9
Windsor Brook	6.4	7.2	6.2	5.8	5.9	5.9	5.3	6.4	6.1	6.8	**	**	6.2
Paine Pond	5.9	6.0	5.5	5.3	5.3	5.5	6.2	5.6	5.6	5.2	4.8	**	5.5
Unnamed Brook—A	6.2	6.6	5.9	5.8	**	6.1	6.2	6.3	6.3	**	**	**	6.2
Unnamed Brook—B	6.4	5.7	5.4	5.3	5.1	5.3	5.8	5.3	5.4	**	**	**	5.5
Free CO₂													
Ponaganset Reservoir	3.0	2.0	2.0	2.5	4.0	6.0	3.0	3.0	4.5	3.5	2.0	2.0	3.1
Coventry Brook	3.5	4.5	4.0	1.5	3.5	5.0	4.0	3.0	5.0	4.0	5.0	3.0	3.8
Wilbur Brook	10.5	7.5	8.0	3.0	7.5	5.5	5.5	5.5	8.0	4.0	**	**	6.5
Westconnaug Reservoir	2.5	6.0	3.5	2.5	2.0	3.0	2.5	1.5	2.5	2.0	3.0	3.0	2.8
Barden Reservoir	4.5	2.5	2.5	3.0	3.0	3.0	3.0	3.0	2.0	3.0	4.5	3.5	3.1
Cork Brook	5.5	3.0	3.0	2.5	4.0	3.5	3.0	2.0	6.0	4.0	**	**	3.7
Rush Brook	4.0	2.0	3.5	2.0	8.0	3.5	3.0	4.5	7.0	7.5	9.5	10.0	5.4
Huntinghouse Brook	4.5	2.0	3.0	2.0	4.5	3.5	3.0	3.0	4.0	7.0	**	**	3.7
Harrisdale Brook	4.0	1.5	3.5	2.5	5.0	3.0	3.0	1.5	3.0	2.0	3.0	2.0	2.8
Blanchard Brook	12.5	5.0	13.0	7.5	23.0	8.5	5.5	10.5	14.5	**	**	**	11.1
Moswansicut Pond	3.0	2.0	2.0	2.0	2.0	3.0	2.0	2.0	2.5	2.5	2.5	2.5	2.3
Regulating Reservoir	3.0	1.5	2.5	3.0	4.0	3.0	1.5	2.0	2.0	2.0	2.5	2.0	2.4
Quonapaug Brook	20.5	4.5	12.5	8.5	16.0	9.0	7.0	11.0	17.0	12.0	**	**	11.8
Hemlock Brook	5.0	4.0	5.0	2.5	7.0	4.0	5.0	2.5	4.0	2.5	3.0	16.0	5.0
Betty Pond Stream.....	2.5	3.0	9.5	6.5	12.0	3.0	3.0	3.0	5.5	5.0	**	**	5.3
Spruce Brook	6.5	4.0	5.0	3.0	4.0	4.5	4.0	3.0	7.0	5.0	**	**	4.6
Brandy Brook	3.0	3.0	3.0	3.0	2.5	2.5	2.5	3.0	3.0	3.5	4.0	3.0	3.0
Moswansicut—South	9.5	0.0	7.5	3.5	4.5	2.0	2.5	4.5	10.0	21.0	**	**	6.5
Windsor Brook	3.0	2.0	3.0	2.0	3.5	3.5	2.5	2.0	5.0	3.0	**	**	3.0
Paine Pond	8.0	2.5	8.5	5.5	15.0	5.5	3.5	5.0	6.0	4.0	6.0	**	6.3
Unnamed Brook—A	9.5	3.0	10.5	3.5	**	5.5	5.0	6.5	9.5	**	**	**	6.6
Unnamed Brook—B	12.5	4.0	6.5	5.0	9.5	5.5	6.5	9.5	11.5	**	**	**	7.8

*Parts per million, except Hydrogen Ion Concentration.

**No sample obtained—Dry.

Note: Unnamed Brook A is just north of Scituate Town Dump. Unnamed Brook B is southwest 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, 1962

Monthly Analyses	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
Alkalinity													
Ponaganset Reservoir	3.0	2.0	2.5	2.5	1.0	2.5	0.5	3.5	2.5	3.0	4.0	3.5	2.5
Coventry Brook	5.0	5.0	5.0	4.5	4.5	5.0	6.5	5.0	6.0	9.0	9.5	8.5	6.1
Wilbur Brook	6.5	5.0	4.5	4.0	4.0	4.0	6.5	7.5	9.5	10.0	**	**	6.2
Westconnaug Reservoir	6.0	6.5	5.0	5.0	5.5	4.5	5.0	7.0	8.0	9.5	11.5	10.0	7.0
Barden Reservoir	4.5	5.0	4.0	3.0	4.5	3.5	4.0	5.0	5.0	6.5	8.0	9.0	5.2
Cork Brook	4.0	4.5	4.5	5.0	5.0	4.0	4.5	5.0	5.5	7.0	**	**	4.9
Rush Brook	7.0	5.0	5.0	5.0	5.0	5.0	3.0	8.0	7.5	10.5	11.0	10.5	6.9
Huntinghouse Brook	6.0	5.0	5.0	6.0	5.0	5.5	4.0	10.0	7.0	15.0	**	**	6.9
Harrisdale Brook	8.0	7.5	8.5	7.5	5.0	6.0	6.0	11.0	10.5	15.0	14.5	14.0	9.5
Blanchard Brook	4.5	5.0	3.5	3.0	3.0	5.0	2.0	6.0	7.0	**	**	**	4.3
Moswansicut Pond	7.5	9.0	7.0	7.0	5.0	8.0	5.0	6.5	8.0	8.5	8.5	9.0	7.4
Regulating Reservoir	6.5	8.0	6.0	6.5	5.5	5.5	4.5	7.5	8.0	10.5	9.0	8.5	7.2
Quonapaug Brook	6.5	5.5	4.0	5.5	3.0	5.0	4.0	9.5	11.0	17.5	**	**	7.2
Hemlock Brook	3.5	5.0	4.5	4.0	0.0	4.0	2.0	4.5	5.5	5.5	8.5	6.0	4.4
Betty Pond Stream.....	4.0	5.0	5.0	5.0	5.0	4.5	3.0	5.0	5.0	5.0	**	**	4.7
Spruce Brook	4.0	4.5	5.0	4.0	3.0	5.5	3.0	5.0	6.5	7.0	**	**	4.8
Brandy Brook	8.5	6.5	8.5	8.0	7.0	5.0	4.5	9.0	10.0	10.5	6.0	9.5	7.8
Moswansicut—South	15.0	14.0	10.0	6.0	10.0	11.0	7.5	13.0	15.0	26.0	**	**	12.8
Windsor Brook	4.0	4.5	4.5	3.5	3.0	4.0	3.0	5.5	5.0	8.5	**	**	4.6
Paine Pond	4.5	4.0	4.5	4.0	3.0	3.5	2.5	5.0	5.0	3.5	10.5	**	4.5
Unnamed Brook—A	6.5	8.5	6.5	7.0	**	6.5	4.5	7.5	10.0	**	**	**	7.1
Unnamed Brook—B	3.0	3.0	3.5	3.5	2.0	3.5	2.5	4.0	4.0	**	**	**	3.2

*Parts per million.

**No sample obtained—Dry.

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

TABLE 13
WATER PURIFICATION WORKS

Chemical and Physical Characteristics of Water in Various Parts of the Distribution System

Year Ended September 30, 1962

Monthly Averages	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
Hydrogen Ion Concentration													
Neutaconkanut Reservoir	10.2	10.1	10.2	10.2	10.2	10.2	10.2	10.1	10.0	10.2	10.1	10.2	10.2
Phenix Avenue, Cranston	10.2	10.1	10.2	10.2	10.1	10.2	10.2	10.1	10.0	10.2	10.1	10.2	10.2
Westminster Street, Olneyville	10.2	10.1	10.2	10.2	10.2	10.2	10.2	10.1	10.0	10.2	10.1	10.2	10.2
Budlong Road, Cranston.....	10.2	10.1	10.2	10.2	10.2	10.2	10.2	10.2	10.0	10.2	10.1	10.2	10.2
Reservoir Avenue, Cranston.....	10.2	10.1	10.2	10.2	10.2	10.2	10.2	10.2	10.0	10.2	10.1	10.2	10.2
T. F. Green Airport, Warwick.....	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.1	10.0	10.2	10.1	10.2	10.2
Biltmore Hotel	10.2	10.1	10.2	10.2	10.2	10.2	10.2	10.2	10.0	10.2	10.1	10.2	10.2
Crown Hotel	10.2	10.1	10.2	10.2	10.2	10.2	10.2	10.2	10.1	10.2	10.1	10.2	10.2
State Office Building	10.2	10.1	10.2	10.2	10.2	10.2	10.2	10.2	10.1	10.2	10.1	10.2	10.2
*Longview Reservoir	10.2	10.2	10.2	10.2	10.1	10.2	10.2	10.2	10.1	10.2	10.1	10.2	10.2
10 Westminster Street	10.2	10.1	10.2	10.2	10.1	10.2	10.2	10.2	10.0	10.2	10.1	10.2	10.2
Phenolphthalein Alkalinity													
Neutaconkanut Reservoir	8.2	7.3	6.7	6.5	6.6	6.7	7.5	7.4	7.6	7.5	7.4	8.1	7.3
Phenix Avenue, Cranston	8.2	7.0	6.6	6.5	6.6	6.6	7.5	7.4	7.5	7.7	7.5	8.3	7.3
Westminster Street, Olneyville	8.0	7.0	6.7	6.5	6.7	6.6	7.5	7.4	7.5	7.7	7.5	8.3	7.3
Budlong Road, Cranston.....	8.3	7.0	6.7	6.5	6.6	6.6	7.6	7.5	7.5	7.7	7.5	8.4	7.3
Reservoir Avenue, Cranston.....	8.2	7.0	6.7	6.5	6.6	6.6	7.6	7.5	7.4	7.6	7.5	8.4	7.3
T. F. Green Airport, Warwick.....	8.2	7.0	6.7	6.5	6.6	6.5	7.6	7.4	7.5	7.6	7.5	8.3	7.3
Biltmore Hotel	8.3	7.0	6.7	6.5	6.6	6.7	7.6	7.5	7.5	7.6	7.5	8.4	7.3
Crown Hotel	8.3	7.0	6.7	6.5	6.5	6.7	7.7	7.5	7.5	7.6	7.5	8.4	7.3
State Office Building	8.3	7.0	6.7	6.5	6.6	6.7	7.7	7.6	7.5	7.7	7.6	8.5	7.4
*Longview Reservoir	9.0	8.0	7.3	7.0	6.7	6.8	7.6	7.6	7.7	8.0	7.9	8.6	7.7
10 Westminster Street	8.2	7.0	6.6	6.5	6.5	6.6	7.6	7.6	7.5	7.6	7.4	8.4	7.3
Methyl Orange Alkalinity													
Neutaconkanut Reservoir	16.6	14.4	13.3	12.9	12.8	13.3	15.0	14.8	14.9	15.3	15.1	16.6	14.6
Phenix Avenue, Cranston	16.3	13.7	13.2	12.7	12.9	13.3	15.0	14.8	14.8	15.3	15.1	17.0	14.5
Westminster Street, Olneyville	16.4	13.7	13.1	12.8	12.9	13.4	15.0	14.7	14.8	15.4	15.1	17.1	14.5
Budlong Road, Cranston.....	16.5	13.7	13.2	12.8	12.9	13.5	15.1	14.7	14.8	15.2	15.3	17.1	14.6
Reservoir Avenue, Cranston.....	16.4	13.7	13.1	12.7	12.9	13.3	15.0	14.8	14.7	15.2	15.2	17.0	14.5
T. F. Green Airport, Warwick.....	16.4	13.7	13.1	12.7	12.9	13.3	15.0	14.7	14.7	15.3	15.2	17.1	14.5
Biltmore Hotel	16.3	13.8	13.1	12.8	12.8	13.5	15.1	14.8	14.9	15.2	15.3	17.2	14.6
Crown Hotel	16.3	13.8	13.2	12.8	12.8	13.4	15.1	14.8	14.9	15.4	15.1	17.2	14.6
State Office Building	16.4	13.7	13.2	12.8	12.9	13.4	15.1	15.0	14.8	15.3	15.3	17.3	14.6
*Longview Reservoir	17.8	15.6	14.4	13.6	13.4	13.7	15.3	15.5	15.6	16.1	16.1	17.4	15.4
10 Westminster Street	16.4	13.8	13.2	12.8	12.9	13.3	15.0	15.0	14.8	15.2	15.2	17.1	14.6
Color													
Neutaconkanut Reservoir	5	5	5	5	5	5	5	5	5	5	5	5	5
Phenix Avenue, Cranston	5	5	5	5	5	5	5	5	5	5	4	4	5
Westminster Street, Olneyville	5	5	5	5	5	5	5	5	5	5	4	5	5
Budlong Road, Cranston.....	5	5	5	5	5	5	5	5	5	5	4	4	5
Reservoir Avenue, Cranston.....	5	5	5	5	5	5	5	5	5	5	4	4	5
T. F. Green Airport, Warwick.....	5	5	5	5	5	5	5	5	5	5	5	5	5
Biltmore Hotel	5	5	5	5	5	5	5	5	5	5	4	5	5
Crown Hotel	5	5	5	5	5	5	5	5	5	5	4	5	5
State Office Building	5	5	5	5	5	4	5	5	5	5	4	5	5
*Longview Reservoir	5	6	6	6	6	6	6	6	5	6	5	6	6
10 Westminster Street	5	5	5	5	5	5	5	5	5	5	4	5	5

*Sample obtained at Our Lady of Fatima Hospital.

TABLE 13 (Continued)

WATER PURIFICATION WORKS

Chemical and Physical Characteristics of Water in Various Parts of the Distribution System

Year Ended September 30, 1962

Monthly Averages	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
Iron													
Neutaconkanut Reservoir	0.01	0.00	0.00	0.00	0.02	0.02	0.01	0.01	0.01	0.01	0.02	0.01	0.01
Phenix Avenue, Cranston .....	.00	.00	.00	.01	.03	.02	.01	.01	.01	.01	.01	.00	.01
Westminster Street, Olneyville .....	.00	.00	.00	.01	.03	.02	.00	.01	.01	.01	.00	.00	.01
Budlong Road, Cranston.....	.00	.00	.00	.01	.04	.02	.00	.01	.00	.01	.00	.00	.01
Reservoir Avenue, Cranston.....	.00	.00	.00	.01	.04	.03	.01	.01	.01	.01	.00	.00	.01
T. F. Green Airport, Warwick.....	.03	.04	.02	.03	.05	.05	.03	.03	.03	.03	.02	.02	.03
Biltmore Hotel .....	.01	.01	.00	.01	.03	.02	.01	.01	.01	.01	.01	.01	.01
Crown Hotel .....	.01	.01	.01	.01	.03	.03	.01	.01	.01	.02	.01	.01	.01
State Office Building .....	.00	.00	.00	.01	.03	.03	.01	.01	.01	.01	.01	.00	.01
*Longview Reservoir .....	.00	.05	.04	.04	.05	.05	.05	.04	.04	.05	.05	.06	.04
10 Westminster Street .....	.01	.01	.01	.01	.03	.02	.01	.01	.01	.02	.01	.01	.01
Chlorides													
Neutaconkanut Reservoir	4.2	4.0	4.0	4.0	3.9	4.0	4.0	4.0	4.0	4.4	4.5	4.3	4.1
Phenix Avenue, Cranston	4.2	4.0	4.0	4.0	3.9	4.0	4.0	4.0	4.0	4.4	4.4	4.2	4.1
Westminster Street, Olneyville	4.3	4.0	4.0	4.0	3.9	4.0	4.0	4.0	4.0	4.4	4.4	4.3	4.1
Budlong Road, Cranston.....	4.3	4.0	4.0	4.0	3.9	4.0	4.0	4.0	4.0	4.5	4.4	4.2	4.1
Reservoir Avenue, Cranston.....	4.3	4.0	4.0	4.0	3.9	4.0	4.0	4.0	4.0	4.4	4.4	4.2	4.1
T. F. Green Airport, Warwick.....	4.3	4.1	4.0	4.0	3.9	4.0	4.1	4.0	4.0	4.4	4.4	4.2	4.1
Biltmore Hotel	4.4	4.0	4.0	4.0	3.9	4.0	4.0	4.0	4.0	4.4	4.4	4.2	4.1
Crown Hotel	4.3	4.1	4.0	4.0	3.9	4.0	4.0	4.0	4.0	4.4	4.4	4.2	4.1
State Office Building	4.4	4.1	4.0	4.0	3.9	4.0	4.0	4.0	4.1	4.4	4.4	4.2	4.1
*Longview Reservoir	4.3	4.2	4.0	4.0	3.9	4.0	4.0	4.0	4.1	4.4	4.4	4.3	4.1
10 Westminster Street	4.3	4.1	4.0	4.1	3.9	4.0	4.1	4.0	4.0	4.4	4.4	4.2	4.1
Nitrites													
Neutaconkanut Reservoir	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Phenix Avenue, Cranston .....	.001	.000	.000	.000	.000	.000	.000	.000	.000	.000	.001	.000	.000
Westminster Street, Olneyville .....	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Budlong Road, Cranston.....	.001	.000	.000	.000	.001	.000	.000	.000	.000	.000	.001	.000	.000
Reservoir Avenue, Cranston.....	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
T. F. Green Airport, Warwick.....	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Biltmore Hotel .....	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Crown Hotel .....	.000	.000	.000	.000	.001	.000	.000	.000	.000	.000	.000	.000	.000
State Office Building .....	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
*Longview Reservoir .....	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
10 Westminster Street .....	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Taste													
Neutaconkanut Reservoir	0	0	0	0	0	0	0	0	0	0	0	0	0
Phenix Avenue, Cranston	0	0	0	0	0	0	0	0	0	0	0	0	0
Westminster Street, 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 Avenue, Cranston.....	0	0	0	0	0	0	0	0	0	0	0	0	0
T. F. Green Airport, Warwick.....	0	0	0	0	0	0	0	0	0	0	0	0	0
Biltmore Hotel	0	0	0	0	0	0	0	0	0	0	0	0	0
Crown Hotel	0	0	0	0	0	0	0	0	0	0	0	0	0
State Office Building	0	0	0	0	0	0	0	0	0	0	0	0	0
*Longview Reservoir	0	0	0	0	0	0	0	0	0	0	0	0	0
10 Westminster Street	0	0	0	0	0	0	0	0	0	0	0	0	0

*Sample obtained at Our Lady of Fatima Hospital.

TABLE 13 (Continued)

WATER PURIFICATION WORKS

Chemical and Physical Characteristics of Water in Various Parts of the Distribution System

Year Ended September 30, 1962

Monthly Averages	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
Odor													
Neutaconkanut Reservoir	0	0	0	0	0	0	0	0	0	0	0	0	0
Phenix Avenue, Cranston	0	0	0	0	0	0	0	0	0	0	0	0	0
Westminster Street, 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 Avenue, Cranston.....	0	0	0	0	0	0	0	0	0	0	0	0	0
T. F. Green Airport, Warwick.....	0	0	0	0	0	0	0	0	0	0	0	0	0
Biltmore Hotel	0	0	0	0	0	0	0	0	0	0	0	0	0
Crown Hotel	0	0	0	0	0	0	0	0	0	0	0	0	0
State Office Building	0	0	0	0	0	0	0	0	0	0	0	0	0
*Longview Reservoir	0	0	0	0	0	0	0	0	0	0	0	0	0
10 Westminster Street	0	0	0	0	0	0	0	0	0	0	0	0	0
Fluoride													
Neutaconkanut Reservoir	1.01	0.98	0.98	0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Phenix Avenue, Cranston	0.98	0.97	0.96	0.99	0.98	0.99	0.99	1.00	1.00	1.00	0.99	1.00	0.99
Westminster Street, Olneyville	1.10	0.99	0.98	0.99	0.97	0.99	1.00	1.00	0.99	1.00	1.00	0.98	1.00
Budlong Road, Cranston.....	0.99	0.97	0.98	0.97	0.97	0.99	0.99	1.00	1.00	1.00	1.01	0.98	0.99
Reservoir Avenue, Cranston.....	1.00	0.96	0.98	0.99	0.98	0.99	1.00	1.00	1.00	1.00	1.00	0.98	0.99
T. F. Green Airport, Warwick.....	0.98	0.98	0.98	0.99	0.98	1.00	1.00	1.00	1.00	1.01	0.99	1.00	0.99
Biltmore Hotel	0.99	0.97	0.97	0.99	0.98	1.01	1.00	1.00	0.99	1.00	1.00	0.98	0.99
Crown Hotel	0.98	0.98	0.97	0.99	0.98	1.01	0.99	0.99	1.00	1.01	1.00	0.98	0.99
State Office Building	0.99	0.97	0.97	0.98	0.97	0.98	1.01	0.98	1.00	1.00	1.00	0.97	0.99
*Longview Reservoir	0.99	0.97	0.98	0.99	0.99	1.00	1.00	1.00	0.99	1.00	1.00	0.99	0.99
10 Westminster Street	0.99	0.98	0.97	0.99	0.98	1.01	1.00	1.00	1.00	1.00	1.00	0.99	0.99

*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, 1962

BACTERIA PER ML. (48 HOURS ON AGAR AT 20° C.)																			
1961-1962	Raw-A.M.		Raw-P.M.		Settled		*Effluent-A.M.		*Effluent-P.M.		Tap								
	Max.	Min. Avg.	Max.	Min. Avg.	Max.	Min. Avg.	Max.	Min. Avg.	Max.	Min. Avg.	Max.	Min. Avg.							
October.....	70	4	26	13	120	13	35	210	9	67	140	3	28	130	2	35	3	0	0
November.....	220	5	42	2	150	2	32	550	39	227	450	26	122	170	0	84	60	0	4
December.....	70	2	14	36	1	12	900	5	229	520	25	134	440	36	193	2	0	0	0
January.....	175	3	39	180	1	50	90	0	26	110	0	26	140	0	26	7	0	0	0
February.....	75	8	21	44	3	20	320	0	84	450	0	76	220	1	59	1	0	0	0
March.....	56	1	20	85	3	15	150	0	31	300	0	63	140	3	33	4	0	0	0
April.....	38	1	19	45	2	16	800	13	169	800	4	134	320	0	115	10	0	1	1
May.....	26	5	11	25	6	12	1,000	5	212	300	0	99	450	6	116	2	0	0	0
June.....	30	1	14	24	6	14	65	1	26	160	1	24	55	2	16	2	0	0	0
July.....	180	6	23	37	5	16	30	0	8	40	0	7	17	0	5	22	0	2	2
August.....	44	3	26	130	2	39	32	2	13	30	0	11	35	3	15	95	0	5	5
September.....	55	5	32	210	4	45	190	18	78	80	25	47	150	6	48	1	0	0	0
For Year.....	220	1	24	210	1	26	1,000	0	98	800	0	64	450	0	62	95	0	1	1

*Before treatment with chlorine and sodium silicofluoride.
A.M. refers to samples obtained in the morning, P.M. to samples obtained in the afternoon.

TABLE 15
WATER PURIFICATION WORKS
Bacteriological Examination of Water in Process of Filtration
Year Ended September 30, 1962

1961-1962		BACTERIA PER ML. (24 HOURS ON AGAR AT 35° C.)											
		Raw-A.M.		Raw-P.M.		Settled		*Effluent-A.M.		*Effluent-P.M.		Tap	
		Max.	Min. Avg.	Max.	Min. Avg.	Max.	Min. Avg.	Max.	Min. Avg.	Max.	Min. Avg.	Max.	Min. Avg.
October.....	34	1	7	38	2	7	0	2	7	0	1	5	0
November.....	310	0	20	10	0	5	44	0	4	3	0	31	0
December.....	12	0	2	120	0	7	40	0	3	55	0	55	0
January.....	25	0	5	11	0	4	240	0	18	1,200	0	35	0
February.....	25	0	7	11	1	5	30	0	2	5	0	190	0
March.....	450	1	37	60	1	10	3	0	0	2	0	30	0
April.....	11	1	5	8	2	4	280	0	14	5	0	3	0
May.....	150	0	9	120	0	10	300	0	14	4	0	1	30
June.....	10	1	4	65	0	7	15	0	1	30	0	1	30
July.....	35	1	6	16	0	5	19	0	2	40	0	3	0
August.....	32	1	10	45	0	11	8	0	1	11	0	14	0
September.....	70	2	15	120	1	18	4	0	1	75	0	14	0
For Year.....	450	0	11	120	0	8	300	0	5	1,200	0	190	0
												120	0

*Before treatment with chlorine and sodium silicofluoride.
A.M. refers to samples obtained in the morning, P.M. to samples obtained in the afternoon.

TABLE 16
WATER PURIFICATION WORKS
Bacteriological Examination of Water in Process of Filtration
Year Ended September 30, 1962

COLIFORM BACTERIA																		
1961-1962	Raw-A.M.			Raw-P.M.			Settled			*Effluent-A.M.			*Effluent-P.M.			Tap		
	No. of 10 ml. of Por- Tests Index Con- per Tested firmed ml.	No. of 10 ml. of Por- Tests Index Con- per Tested firmed ml.	No. of 10 ml. of Por- Tests Index Con- per Tested firmed ml.	No. of 10 ml. of Por- Tests Index Con- per Tested firmed ml.	No. of 10 ml. of Por- Tests Index Con- per Tested firmed ml.	No. of 10 ml. of Por- Tests Index Con- per Tested firmed ml.	No. of 10 ml. of Por- Tests Index Con- per Tested firmed ml.	No. of 10 ml. of Por- Tests Index Con- per Tested firmed ml.	No. of 10 ml. of Por- Tests Index Con- per Tested firmed ml.	No. of 10 ml. of Por- Tests Index Con- per Tested firmed ml.	No. of 10 ml. of Por- Tests Index Con- per Tested firmed ml.	No. of 10 ml. of Por- Tests Index Con- per Tested firmed ml.	No. of 10 ml. of Por- Tests Index Con- per Tested firmed ml.	No. of 10 ml. of Por- Tests Index Con- per Tested firmed ml.				
October.....	75	52	0.069	42	32	0.076	50	1	0.002	50	0	0.000	42	0	0.000	125	0	0.000
November.....	72	65	.090	42	37	.088	48	1	.002	48	0	.000	42	1	.002	120	0	.000
December.....	75	61	.081	40	38	.095	50	3	.006	50	0	.000	40	1	.003	125	0	.000
January.....	78	47	.060	44	24	.055	52	3	.006	52	1	.002	44	1	.002	130	0	.000
February.....	69	13	.019	38	5	.013	46	0	.000	46	0	.000	38	0	.000	115	0	.000
March.....	81	3	.004	44	1	.002	54	0	.000	54	0	.000	44	0	.000	135	0	.000
April.....	75	20	.027	40	11	.028	50	0	.000	50	0	.000	40	0	.000	125	0	.000
May.....	75	4	.005	42	1	.002	50	1	.002	50	0	.000	42	0	.000	125	0	.000
June.....	78	2	.003	42	0	.000	52	2	.004	52	0	.000	42	0	.000	130	0	.000
July.....	75	1	.001	42	2	.005	50	1	.002	50	1	.002	42	0	.000	125	4	.003
August.....	78	21	.027	42	12	.029	52	4	.008	52	1	.002	42	1	.002	130	0	.000
September.....	72	21	.029	38	5	.013	48	4	.008	48	2	.004	38	0	.000	120	0	.000
For Year.....	903	310	.034	496	168	.034	602	20	.003	602	5	.001	496	4	.001	1,505	4	.000

*Before treatment with chlorine and sodium silicofluoride.
A.M. refers to samples obtained in the morning, P.M. to samples obtained in the afternoon.

TABLE 17

WATER PURIFICATION WORKS

Bacteriological Examination of Water in Various Brooks and Reservoirs on Scituate Watershed

Year Ended September 30, 1962

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.													
Ponaganset Reservoir	420	180	8	2	80	16	19	70	550	330	85	330	174
Coventry Brook	900	85	130	42	75	80	85	270	420	200	840	2,700	486
Wilbur Brook	5,500	290	160	14	240	130	330	450	630	250	**	**	799
Westconnaug Reservoir	500	150	110	8	160	90	750	95	550	110	180	150	238
Barden Reservoir	75	610	80	60	90	150	80	230	290	350	570	260	237
Cork Brook	90	160	140	35	120	55	95	180	170	140	**	**	119
Rush Brook	450	350	70	30	210	26	155	2,500	1,600	180	650	140	530
Huntinghouse Brook	330	75	230	280	750	95	350	320	4,100	660	**	**	719
Harrisdale Brook	120	820	250	160	170	190	500	970	4,500	1,500	450	500	844
Blanchard Brook	140	260	360	33	28	450	1,100	1,600	650	**	**	**	513
Moswansicut Pond	260	44	23	25	35	105	65	750	340	190	220	220	190
Regulating Reservoir	150	17	95	18	330	180	180	230	290	130	160	170	163
Quonapaug Brook	1,800	55	165	11	90	77	150	1,250	350	550	**	**	450
Hemlock Brook	210	330	110	35	55	200	700	110	1,100	200	105	75	269
Betty Pond Stream	140	380	75	0	1,100	320	130	190	80	420	**	**	284
Spruce Brook	160	550	90	25	160	190	36	400	420	900	**	**	293
Brandy Brook	330	320	1,500	17	220	600	140	540	800	210	210	180	422
Moswansicut—South	2,700	700	190	800	1,400	230	1,500	1,000	5,000	4,500	**	**	1,802
Windsor Brook	550	250	350	50	280	60	110	480	6,500	1,800	**	**	1,043
Paine Pond	900	900	2,400	0	370	48	30	720	900	250	3,200	**	883
Unnamed Brook—A	450	350	310	1	**	52	160	800	3,200	**	**	**	665
Unnamed Brook—B	180	240	75	21	250	25	35	650	1,200	**	**	**	297
Bacteria per Ml. 24 Hours on Agar at 35° C.													
Ponaganset Reservoir	63	0	5	2	2	2	5	44	230	250	120	62	65
Coventry Brook	48	17	17	11	5	7	23	90	120	150	320	250	88
Wilbur Brook	750	13	35	16	19	25	110	380	200	240	**	**	179
Westconnaug Reservoir	23	60	6	120	3	17	40	420	42	64	175	240	101
Barden Reservoir	30	150	15	21	17	19	10	300	45	370	260	120	113
Cork Brook	80	46	14	20	9	32	32	140	110	85	**	**	57
Rush Brook	120	25	5	15	13	2	25	650	740	450	350	110	209
Huntinghouse Brook	115	14	6	6	14	15	29	350	350	300	**	**	120
Harrisdale Brook	140	30	45	30	4	3	36	530	180	540	290	1,100	244
Blanchard Brook	90	41	21	28	15	180	550	900	260	**	**	**	232
Moswansicut Pond	320	16	0	12	13	14	6	220	220	650	440	60	164

**No sample obtained—Dry.

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

TABLE 17 (Continued)

WATER PURIFICATION WORKS

Bacteriological Examination of Water in Various Brooks and Reservoirs on Scituate Watershed

Year Ended September 30, 1962

Monthly Analyses	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
Bacteria per Ml. 24 Hours on Agar at 35° C.													
Regulating Reservoir	80	5	20	24	2	12	14	250	80	80	210	85	72
Quonapaug Brook	110	13	7	22	5	11	37	660	190	130	**	**	119
Hemlock Brook	95	9	8	16	2	9	40	55	35	95	180	28	48
Betty Pond Stream.....	130	27	11	15	6	9	42	250	370	280	**	**	114
Spruce Brook	180	35	27	13	11	7	16	110	95	320	**	**	81
Brandy Brook	42	120	55	21	7	85	33	190	600	160	140	40	124
Moswansicut—South	1,600	140	200	320	16	210	350	750	2,500	7,000	**	**	1,309
Windsor Brook	70	38	16	11	14	4	7	210	350	1,100	**	**	182
Paine Pond	210	85	8	4	15	6	18	350	340	190	950	**	198
Unnamed Brook—A	150	67	9	19	**	9	15	480	450	**	**	**	150
Unnamed Brook—B	52	3	6	13	20	5	0	85	150	**	**	**	37
Coliform Bacteria Index per 100 Ml.													
Ponaganset Reservoir	25	25	0	0	0	0	0	25	25	6	25	6	.....
Coventry Brook	110†	110†	6	0	0	0	25	70	70	25	110†	25	.....
Wilbur Brook	110†	70	25	25	6	6	25	110†	70	25	**	**	.....
Westconnaug Reservoir	25	25	25	0	13	0	6	25	70	25	70	70	.....
Barden Reservoir	25	110†	0	6	13	0	25	6	110†	70	70	25	.....
Cork Brook	70	70	0	6	0	25	0	5	110†	70	**	**	.....
Rush Brook	25	25	70	6	70	0	6	110†	110†	25	25	25	.....
Huntinghouse Brook	70	110†	6	6	25	25	0	70	110†	25	**	**	.....
Harrisdale Brook	110†	110†	6	70	70	6	6	70	70	25	70	6	.....
Blanchard Brook	70	25	25	25	0	110†	25	110†	110†	**	**	**	.....
Moswansicut Pond	70	6	6	0	0	110†	25	25	70	70	110†	25	.....
Regulating Reservoir	110†	25	6	0	25	0	25	25	25	6	0	6	.....
Quonapaug Brook	110†	70	0	6	0	0	6	110†	110†	70	**	**	.....
Hemlock Brook	0	25	25	25	0	6	25	6	70	70	110†	0	.....
Betty Pond Stream.....	70	6	0	0	0	0	0	25	110†	110†	**	**	.....
Spruce Brook	25	25	25	5	25	0	0	70	25	110†	**	**	.....
Brandy Brook	25	110†	13	6	0	0	6	110†	110†	25	70	13	.....
Moswansicut—South	70	110†	110†	110†	110†	110†	70	110†	110†	70	**	**	.....
Windsor Brook	240	240	15	23	23	3.6	43	75	1,100	930	**	**	.....
Paine Pond	70	70	70	0	25	6	6	110†	110†	6	110†	**	.....
Unnamed Brook—A	70	70	70	25	**	25	6	110†	110†	**	**	**	.....
Unnamed Brook—B	25	25	110†	0	10	0	10	10	110†	**	**	**	.....

†Indicates Index of 110+.

**No sample obtained—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, 1962

Monthly Averages	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Avg. for Year
Bacteria per Ml. 48 Hours on Agar at 20° C.													
Neutaconkanut Reservoir	0	0	1	0	0	1	3	0	0	0	0	0	0
Phenix Avenue, Cranston	0	0	0	1	0	1	1	0	0	0	0	0	0
Westminster Street, Olneyville	0	0	0	0	0	0	0	1	1	0	0	0	0
Budlong Road, Cranston.....	1	0	0	0	0	0	0	0	0	0	0	0	0
Reservoir Avenue, Cranston.....	0	0	0	0	0	0	1	0	1	0	0	0	0
T. F. Green Airport, Warwick.....	0	0	4	0	0	0	1	0	1	0	0	0	1
Biltmore Hotel	0	1	9	0	0	1	1	0	0	0	0	0	1
Crown Hotel	0	1	0	0	0	0	0	0	0	0	0	0	0
State Office Building	0	2	1	0	0	0	0	0	0	0	0	0	0
*Longview Reservoir	1	0	6	0	0	0	1	1	0	0	10	0	2
10 Westminster Street	0	2	1	0	0	0	2	1	0	0	2	0	1
Bacteria per Ml. 24 Hours on Agar at 35° C.													
Neutaconkanut Reservoir	1	0	0	0	1	0	13	3	3	1	7	13	4
Phenix Avenue, Cranston	0	0	1	1	4	0	0	2	0	2	0	1	1
Westminster Street, Olneyville	0	1	0	12	2	0	6	4	6	0	2	0	3
Budlong Road, Cranston.....	0	13	1	1	3	0	7	1	0	0	0	5	3
Reservoir Avenue, Cranston.....	1	4	0	0	1	2	2	1	1	1	0	0	1
T. F. Green Airport, Warwick.....	0	1	0	0	0	0	1	3	1	2	5	0	1
Biltmore Hotel	0	0	0	1	18	4	0	3	4	1	14	0	4
Crown Hotel	0	2	0	0	14	0	15	1	1	0	3	0	3
State Office Building	3	0	0	3	0	2	8	0	0	1	0	0	1
*Longview Reservoir	2	3	0	0	2	0	0	0	1	0	5	0	1
10 Westminster Street	0	1	0	2	1	3	7	2	0	0	6	0	2
Coliform Bacteria Index per Ml.													
Neutaconkanut Reservoir	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.001	0.000
Phenix Avenue, Cranston .....	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Westminster Street, Olneyville .....	.000	.000	.000	.001	.000	.000	.000	.000	.000	.000	.000	.000	.000
Budlong Road, Cranston.....	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Reservoir Avenue, Cranston.....	.000	.000	.000	.000	.000	.000	.000	.000	.000	.003	.000	.000	.000
T. F. Green Airport, Warwick.....	.000	.000	.000	.000	.000	.000	.000	.000	.000	.002	.000	.000	.000
Biltmore Hotel .....	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Crown Hotel .....	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
State Office Building .....	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
*Longview Reservoir .....	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
10 Westminster Street .....	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

*Sample obtained at Our Lady of Fatima Hospital.

TABLE 19
WATER PURIFICATION WORKS
Mineral Analysis of Water — Year Ended September 30, 1962

Parts per Million	RAW WATER*					TAP WATER				
	1961	1962				1961	1962			
	Oct.- Dec.	Jan.- Mar.	Apr.- June	July- Sept.	Avg.	Oct.- Dec.	Jan.- Mar.	Apr.- June	July- Sept.	Avg.
Aluminum.....	0.03	0.00	0.02	0.00	0.01	0.02	0.02	0.06	0.07	0.04
Arsenic.....	.....	0.00	.....	0.00	0.00	.....	0.00	.....	0.00	0.00
Calcium.....	2.70	2.93	2.52	3.30	2.86	9.08	9.87	10.03	9.92	9.73
Chloride.....	3.53	3.53	3.87	3.93	3.72	4.10	4.00	4.03	4.37	4.13
Copper.....	0.00	0.02	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01
Fluoride.....	0.13	0.14	0.15	0.14	0.14	0.99	0.99	0.99	1.00	0.99
Hardness.....	10	10	9	9	10	27	27	28	29	28
Iron.....	0.14	0.07	0.04	0.14	0.10	0.00	0.02	0.01	0.01	0.01
Lead.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Magnesium.....	0.18	0.27	0.22	0.24	0.23	0.14	0.19	0.18	0.19	0.18
Manganese.....	0.06	0.00	0.01	0.07	0.04	0.00	0.00	0.00	0.00	0.00
Phenolic Compounds.....	0.007	.....	.....	.....	0.007	0.001	.....	.....	.....	0.001
Selenium.....	0.00	.....	0.00	.....	0.00	0.00	.....	0.00	.....	0.00
Silica.....	5.0	5.5	5.0	5.0	5.1	4.5	4.5	4.5	6.0	4.9
Sulphate.....	6.6	7.2	6.0	7.3	6.8	12.8	14.6	13.8	12.3	13.4
Total Solids.....	37	33	37	35	36	56	53	54	55	54
Loss on Ignition.....	15	14	16	15	15	16	17	17	17	17
Total Alkalinity.....	4.9	4.4	4.7	5.3	4.8	14.4	13.0	14.9	15.6	14.5
Phenolphthalein Alkalinity	0.0	0.0	0.0	0.0	0.0	7.2	6.6	7.5	7.9	7.3
Zinc.....	0.0	.....	0.0	.....	0.0	0.0	.....	0.0	.....	0.0

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

TABLE 20
WATER PURIFICATION WORKS
Sanitary Chemical Analysis (P.P.M.) — Year Ended September 30, 1962

1961-1962	RAW WATER*						TAP WATER					
	Ammonia			Dissolved Oxygen			Ammonia			Dissolved Oxygen		
	Free	Alb.	Nitrites	Ni- trates	Chlo- rides	P.P.M.	Free	Alb.	Nitrites	Chlo- rides	P.P.M.	% Sat.
						Loss on Igni- tion						% Sat.
						Total Solids						Total Solids
October.....	0.032	0.108	0.000	0.02	3.7	9.1	0.024	0.076	0.000	0.02	4.3	59
November.....	0.016	0.044	0.000	0.02	3.3	9.2	0.024	0.052	0.000	0.02	4.0	54
December.....	0.048	0.124	0.000	0.03	3.6	10.1	0.032	0.084	0.000	0.03	4.0	54
January.....	0.024	0.084	0.000	0.01	3.8	11.8	0.064	0.024	0.000	0.06	4.1	57
February.....	0.024	0.044	0.000	0.02	3.4	11.8	0.016	0.036	0.000	0.03	3.9	49
March.....	0.024	0.036	0.000	0.05	3.4	11.6	0.016	0.044	0.000	0.04	4.0	52
April.....	0.016	0.052	0.000	0.02	3.7	11.1	0.024	0.036	0.000	0.02	4.0	50
May.....	0.024	0.068	0.000	0.05	3.9	9.6	0.024	0.044	0.000	0.04	4.0	56
June.....	0.032	0.060	0.000	0.04	4.0	8.3	0.024	0.044	0.000	0.05	4.1	56
July.....	0.032	0.052	0.000	0.02	4.0	7.7	0.016	0.040	0.000	0.03	4.4	53
August.....	0.032	0.052	0.000	0.04	4.0	6.9	0.024	0.036	0.000	0.05	4.4	51
September.....	0.040	0.060	0.000	0.05	3.8	5.1	0.016	0.036	0.000	0.05	4.3	62
Averages.....	0.029	0.065	0.000	0.03	3.7	9.4	0.025	0.046	0.000	0.04	4.1	54

*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, 1962

SOURCE OF WATER TESTED	Frequency of Test or Examination	Number of Tests or Analyses Made During the Fiscal Year					
		Chemical	Bacteri- ological	Micro- scopical	Sanitary Chemical	Miscel- laneous	Total
I Brooks and Streams on Watershed							
Fourteen Brooks, Two Streams and One Pond.....	Monthly.....	1,470	2,114	.....	74	.....	3,658
II Smaller Storage Reservoirs on Watershed							
Regulating Reservoir	Monthly.....	84	91	.....	.....	.....	175
Westconnaug Reservoir	Monthly.....	84	102	.....	.....	.....	186
Barden Reservoir	Monthly.....	84	100	.....	.....	.....	184
Moswansicut Pond	Monthly.....	84	100	.....	.....	.....	184
Ponaganset Reservoir	Monthly.....	84	84	.....	.....	.....	168
III Scituate Reservoir							
Surface Water .....	.....	208	337	15	156	.....	716
Subsurface Water (See Purif. Wks.—Raw Water).....	Bi-Weekly.....	.....	.....	.....	.....	.....	.....
IV Pawtuxet River—Below Gainer Dam							
Gainer Dam Meter Chamber.....	.....	182	.....	.....	156	.....	338
Fiskeville, R. I.	Bi-Weekly.....	182	.....	.....	156	.....	338
Twelve other locations on Pawtuxet River.....	Bi-Weekly.....	2,346	.....	.....	2,184	.....	4,530
V Water Purification Works							
Raw Water (from Bottom of Scituate Reservoir).....	Daily.....	2,991	3,740	.....	1,444	361	8,536
Raw Water (from Bottom of Scituate Reservoir).....	Bi-Weekly.....	.....	.....	15	26*	.....	41
Raw Water (from Bottom of Scituate Reservoir).....	Monthly.....	.....	.....	.....	72**	.....	72
***Raw Water (from Bottom of Scituate Reservoir).....	Every 13 Weeks.....	.....	.....	.....	.....	35	35
Aerated Influent	Daily.....	723	.....	.....	.....	.....	723
Mixer	Daily.....	1,844	.....	.....	.....	.....	1,844
Settled	Daily.....	2,468	1,228	.....	.....	361	4,057
Settled	Bi-Weekly.....	.....	.....	15	26*	.....	41
Settled	Monthly.....	.....	.....	.....	48**	.....	48
Filtered	Daily.....	1,085	.....	.....	.....	.....	1,085
Filtered	Monthly.....	.....	.....	.....	48**	.....	48
Unchlorinated Effluent	Daily.....	3,197	1,211	.....	1,448	.....	5,856
Unchlorinated Effluent	Bi-Weekly.....	.....	.....	15	26*	.....	41
Unchlorinated Effluent	Monthly.....	.....	.....	.....	24**	.....	24
Chlorinated Effluent	Daily.....	1,500	1,750	.....	1,250	.....	4,500
Raw Water (from Bottom of Scituate Reservoir).....	Daily at 3:00 P.M.....	992	1,160	.....	992	.....	3,144
Unchlorinated Effluent	Daily at 3:00 P.M.....	992	996	.....	992	.....	2,980

TABLE 21 (Continued)

WATER PURIFICATION WORKS

Laboratory Examinations Made During the Fiscal Year Ended September 30, 1962

SOURCE OF WATER TESTED	Frequency of Test or Examination	Number of Tests or Analyses Made During the Fiscal Year						
		Chemical	Bacteri- ological	Micro- scopical	Sanitary Chemical	Mineral	Miscel- laneous	Total
VI Neutaconkanut Distribution Reservoir								
Sample from nearby Tap.....	Daily.....	1,500	1,753	.....	1,000	.....	.....	4,253
Sample from nearby Tap.....	Bi-Weekly.....	.....	.....	15	.....	.....	.....	15
VII Longview Distribution Reservoir								
Sample from nearby Tap.....	Daily.....	1,500	1,750	.....	1,000	.....	.....	4,250
Sample from nearby Tap.....	Bi-Weekly.....	.....	.....	15	.....	.....	.....	15
VIII Distribution System								
Providence City Hall Tap Water.....	Daily.....	2,405	2,112	.....	1,505	.....	301	6,323
Providence City Hall Tap Water.....	Bi-Weekly.....	.....	.....	15	.....	.....	.....	15
Providence City Hall Tap Water.....	Monthly.....	.....	.....	.....	60**	.....	.....	60
***Providence City Hall Tap Water.....	Every 13 Weeks.....	.....	.....	.....	.....	31	.....	31
****Sectional Tests.....	Monthly.....	708	440	.....	330	.....	.....	1,478
Consumers' Complaints (38 during the year).....	.....	291	168	.....	181	.....	.....	640
Disinfection of Newly Laid Mains.....	.....	.....	1,032	.....	116	.....	.....	1,148
†Sectional Tests.....	Daily.....	11,874	13,860	.....	7,916	.....	.....	33,650
IX Miscellaneous Tests								
Coagulation Tests to Determine Chemical Dosages.....	.....	156	.....	.....	.....	.....	66	222
Analysis of Ferri-Floc used for Treatment.....	.....	57	.....	.....	.....	.....	19	76
Analysis of Quicklime used for Treatment.....	.....	18	.....	.....	.....	.....	36	54
Analysis of Sod. Silicofluoride used for Treatment.....	.....	8	.....	.....	.....	.....	.....	8
Water, Filter Sand and Other Materials.....	.....	1,297	2,965	.....	467	.....	30	4,759
Totals.....	.....	40,414	37,093	105	21,697	66	1,174	100,549

*For Oxygen Consumed only.

**Exclusive of Oxygen Consumed.

***Composite of 13 Weekly Samples.

****Samples from 10 Random Dwellings (location changed monthly).

†Samples from eight fixed locations.

TABLE 22
WATER DISTRIBUTION SYSTEM
NEUTACONKANUT HIGH SERVICE PUMPING STATION
Operating Statistics for Year Ended September 30, 1962

1961-1962	ELECTRICALLY-DRIVEN PUMPS								GASOLINE ENGINE-DRIVEN PUMP			
	No. 1 10" Pump 2700 GPM. TDH 90'		No. 2 12" Pump 3800 GPM. TDH 104'		No. 3 16" Pump 7000 GPM. TDH 96'		Power Used*		No. 4 16" Pump 7000 GPM. TDH 96'			
	Operated Hours and		Operated Hours and		Operated Hours and				†Operated Hours and		Gasoline Used	Oil Used
	Days	Minutes	Days	Minutes	Days	Minutes	KWH	Cost	Days	Minutes	Gals.	Qts.
October.....	3	71-00	28	623-00	0	0-00	71,000	\$ 1,103.49	3	3-00	121	0
November.....	14	333-00	15	370-00	0	0-00	66,500	1,053.62	4	4-00	168	0
December.....	0	0-00	31	738-00	0	0-00	76,500	1,157.71	4	4-00	138	0
January.....	0	0-00	31	739-00	0	0-00	77,000	1,156.32	5	5-00	160	0
February.....	0	0-00	28	667-00	0	0-00	86,500	1,257.35	4	4-00	120	0
March.....	5	58-00	31	734-35	0	0-00	79,000	1,187.44	4	4-00	70	0
April.....	0	0-00	30	702-00	0	0-00	75,500	1,230.01	3	3-00	152	0
May.....	1	8-00	31	734-30	0	0-00	78,000	1,173.57	5	4-30	120	0
June.....	3	15-00	30	654-30	4	42-00	75,500	1,231.89	4	4-00	145	0
July.....	6	33-00	29	636-00	7	92-00	93,000	1,415.28	4	4-00	133	0
August.....	2	10-30	19	387-30	16	313-00	98,500	1,485.14	4	4-00	140	0
September.....	0	0-00	26	576-00	6	117-00	81,500	1,299.49	7	7-00	260	0
Totals.....	34	528-30	329	7,562-05	33	564-00	958,500	\$14,751.31	51	50-30	1,727	0

*Narragansett Electric Co. Power Rate G.

†Engine Test Run.

TABLE 22 (Continued)
WATER DISTRIBUTION SYSTEM
NEUTACONKANUT HIGH SERVICE PUMPING STATION
Operating Statistics for Year Ended September 30, 1962

1961-1962	ELECTRICALLY-DRIVEN PUMPS			GASOLINE ENGINE-DRIVEN PUMP		Total Water Pumped — Mil. Gals.
	No. 1 10" Pump 2700 GPM. TDH 90'	No. 2 12" Pump 3800 GPM. TDH 104'	No. 3 16" Pump 7000 GPM. TDH 96'	No. 4 16" Pump 7000 GPM. TDH 96'		
	Water Pumped — Mil. Gals.	Water Pumped — Mil. Gals.	Water Pumped — Mil. Gals.	Water Pumped — Mil. Gals.	For Month	
	Avg. per Day					
October.....	12.53	172.04	0	0.75	185.32	5.98
November.....	60.57	102.15	0	0.93	163.65	5.46
December.....	0	203.76	0	1.13	204.89	6.61
January.....	0	204.35	0	1.41	205.76	6.64
February.....	0	182.12	0	1.11	183.23	6.54
March.....	19.65	189.89	0	1.07	210.61	6.79
April.....	0	194.41	0	0.85	195.26	6.51
May.....	1.92	203.50	0	1.27	206.69	6.67
June.....	3.72	180.43	13.71	1.16	199.02	6.63
July.....	7.83	173.26	33.69	1.12	215.90	6.96
August.....	2.51	109.22	121.34	1.36	234.43	7.56
September.....	0	162.26	44.46	2.09	208.81	6.96
Totals.....	108.73	2,077.39	213.20	14.25	2,413.57	6.61

TABLE 23
WATER DISTRIBUTION SYSTEM
BATH STREET HIGH SERVICE PUMPING STATION
Operating Statistics for Year Ended September 30, 1962

1961-1962	ELECTRICALLY-DRIVEN PUMPS						GASOLINE ENGINE-DRIVEN PUMPS							
	Pump No. 1 2000 GPM. TDH 98'		Pump No. 2 2000 GPM. TDH 98'		Power Used*		Pump No. 3 2000 GPM. TDH 98'; 150 HP Sterling Engine				Pump No. 4 2000 GPM. TDH 98'; 150 HP Sterling Engine			
	Operated Hours and		Operated Hours and				†Operated Gasoline		Oil		†Operated Gasoline		Oil	
	Days	Minutes	Days	Minutes	KWH	Cost	Days	Minutes	Used Gals.	Used Qts.	Days	Minutes	Used Gals.	Used Qts.
October.....	22	207-30	19	155-30	47,180	\$1,056.12	2	2-00	16	10	2	2-00	16	10
November.....	21	233-00	21	196-00	26,740	564.89	2	2-00	9	0	2	2-00	9	0
December.....	1	4-00	25	151-00	.....	.....	1	1-00	8	0	1	1-00	8	0
January.....	0	0	30	267-00	21,980**	625.45**	1	1-00	7	0	1	1-00	7	0
February.....	0	0	28	271-00	18,060	425.36	1	1-00	10	0	1	1-00	10	0
March.....	7	53-00	20	202-30	14,000	362.18	1	1-00	9	0	1	1-00	9	0
April.....	16	148-15	17	123-30	14,280	387.29	1	1-00	10	0	1	1-00	10	0
May.....	19	158-30	23	177-00	16,520	424.72	1	1-00	10	0	2	2-00	10	0
June.....	23	249-30	23	233-00	28,560	581.42	1	1-00	6	0	1	1-00	6	0
July.....	26	250-30	25	234-00	26,880	560.84	1	1-00	8	0	1	1-00	8	0
August.....	23	186-30	19	176-30	23,520	528.16	0	0	0	0	0	0	0	0
September....	9	72-30	16	137-00	12,600	363.52	1	1-00	8	0	1	1-00	8	0
Totals.....	167	1,564-15	266	2,324-00	250,320	\$5,879.95	13	13-00	101	10	14	14-00	101	10

*Narragansett Electric Co. Power Rate G.

**For the two months, December and January.

†Engine Test Run.

TABLE 23 (Continued)
WATER DISTRIBUTION SYSTEM
BATH STREET HIGH SERVICE PUMPING STATION
Operating Statistics for Year Ended September 30, 1962

1961-1962	ELECTRICALLY-DRIVEN PUMPS		GASOLINE ENGINE-DRIVEN PUMPS		Total Water Pumped — Mil. 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		
	Water Pumped — Mil. Gals.	Water Pumped — Mil. Gals.	Water Pumped — Mil. Gals.	Water Pumped — Mil. Gals.	For Month	Avg. per Day
October.....	27.72	20.55	0.26	0.26	48.79	1.57
November.....	30.74	25.74	0.26	0.26	57.00	1.90
December.....	0.53	20.87	0.13	0.13	21.66	0.70
January.....	0	36.89	0.13	0.13	37.15	1.20
February.....	0	37.40	0.13	0.13	37.66	1.35
March.....	7.39	27.80	0.12	0.12	35.43	1.14
April.....	20.41	17.06	0.13	0.13	37.73	1.26
May.....	21.52	23.78	0.13	0.26	45.69	1.47
June.....	33.01	30.96	0.13	0.13	64.23	2.14
July.....	32.98	30.80	0.14	0.14	64.06	2.07
August.....	24.84	23.23	0	0	48.07	1.55
September.....	9.96	18.93	0.14	0.14	29.17	0.97
Totals.....	209.10	314.01	1.70	1.83	526.64	1.44

TABLE 24
WATER DISTRIBUTION SYSTEM
Neutaconkanut Distribution Reservoir*
Operating Statistics for Year Ended September 30, 1962

1961-1962	OPERATING CHARACTERISTICS DURING MONTH									
	7 A.M. Statistics on First Day of Month		Water Level			Storage—Mil. Gals.			Daily Water Level Fluctuation—Ft.	
	Water Level	Storage Mil. Gals.	Max.	Min.	Avg.†	Max.	Min.	Avg.†	Max.	Min.
October.....	226.55	41.30	226.94	223.51	226.57	42.00	35.96	41.34	3.11	1.63
November.....	226.33	40.91	226.85	223.47	226.55	41.84	35.89	41.30	3.23	1.72
December.....	226.58	41.36	226.95	222.42	226.27	42.01	34.04	40.81	4.10	1.26
January.....	226.00	40.34	226.79	223.09	226.30	41.73	35.22	40.86	3.38	1.41
February.....	226.20	40.69	226.68	223.15	226.31	41.54	35.32	40.88	3.54	0.88
March.....	226.50	41.21	226.70	223.25	226.40	41.57	35.50	41.04	3.23	1.32
April.....	226.53	41.27	227.10	223.44	226.45	42.26	35.83	41.12	3.30	1.13
May.....	226.64	41.46	226.93	222.22	226.54	41.99	33.69	41.28	4.71	1.87
June.....	226.85	41.84	226.94	222.47	226.53	42.00	34.13	41.27	3.93	0.90
July.....	226.55	41.30	226.94	222.52	226.57	42.00	34.22	41.34	4.15	1.05
August.....	225.79	39.97	227.01	222.38	226.56	42.11	33.97	41.32	4.37	0.68
September.....	226.05	40.43	227.01	223.03	226.35	42.11	35.11	40.95	3.43	0.54
For Year.....	.....	.....	227.10	222.22	226.45	42.26	33.69	41.13	4.71	0.54
									8.30	0.95
										4.23

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

TABLE 25
WATER DISTRIBUTION SYSTEM
Longview Distribution Reservoir*
Operating Statistics for Year Ended September 30, 1962

1961-1962	OPERATING CHARACTERISTICS DURING MONTH									
	7 A.M. Statistics on First Day of Month		Water Level			Storage—Mil. Gals.			Daily Water Level Fluctuation—Ft.	
	Water Level	Storage Mil. Gals.	Max.	Min.	Avg.†	Max.	Min.	Avg.†	Max.	Min.
October.....	303.65	11.31	305.10	302.45	304.14	11.99	10.76	11.54	2.46	0.78
November.....	303.85	11.40	305.45	302.46	304.35	12.14	10.76	11.63	2.78	0.90
December.....	304.63	11.77	305.27	302.30	304.69	12.06	10.69	11.79	2.81	1.30
January.....	304.32	11.62	305.13	301.94	304.59	12.00	10.52	11.75	2.83	1.39
February.....	304.27	11.60	304.92	302.32	304.59	11.90	10.70	11.75	2.45	1.34
March.....	304.40	11.66	305.15	301.80	304.64	12.01	10.46	11.77	2.81	1.22
April.....	305.26	12.06	305.37	301.79	304.46	12.11	10.45	11.69	2.82	0.86
May.....	304.61	11.76	305.30	301.47	304.64	12.08	10.30	11.77	3.39	0.45
June.....	304.65	11.78	305.65	301.46	304.68	12.24	10.30	11.79	3.07	0.67
July.....	304.77	11.83	305.48	301.26	304.71	12.16	10.20	11.80	3.32	1.21
August.....	304.50	11.71	305.45	300.03	304.44	12.14	9.63	11.68	5.18	1.05
September.....	304.34	11.63	305.44	301.23	304.50	12.14	10.19	11.71	3.06	1.19
For Year.....	.....	.....	305.65	300.03	304.54	12.24	9.63	11.72	5.18	0.45
									2.41	0.30
										0.91

*Storage capacity at overflow elevation of 306.00=12,400,000 gallons. †Average of 7 A.M. statistics.
Note: Water levels are elevations in feet above mean high water in Providence harbor.

TABLE 26
Water Pipe Laid, Removed and Added
Year Ended September 30, 1962

PIPE LAID IN FEET											
City or Town	6"	8"	10"	12"	16"	24"	36"	42"	48"	60"	Totals
Providence.....	8,529.74	6,532.85	12.00	1,188.04	106.10	1,467.16	0	0	0	0	17,835.89
Cranston.....	5,634.96	15,607.81	0	322.70	0	0	116.01	51.12	126.97	2,239.89	24,099.46
Johnston.....	2,859.15	10,860.26	0	0	0	0	0	0	0	0	13,719.41
N. Providence	3,533.71	4,590.30	0	1,906.25	0	0	0	0	0	0	10,030.26
Totals.....	20,557.56	37,591.22	12.00	3,416.99	106.10	1,467.16	116.01	51.12	126.97	2,239.89	65,685.02

PIPE REMOVED IN FEET											
City or Town	6"	8"	10"	12"	16"	24"	36"	42"	48"	60"	Totals
Providence.....	9,791.14	422.00	12.00	354.84	364.36	2,336.00	0	0	0	0	13,280.34
Cranston.....	362.65	0	0	0	0	0	0	0	0	0	362.65
Johnston.....	0	0	0	0	0	0	0	0	0	0	0
N. Providence	76.60	0	0	0	0	0	0	0	0	0	76.60
Totals.....	10,230.39	422.00	12.00	354.84	364.36	2,336.00	0	0	0	0	13,719.59

NET LENGTH ADDED TO DISTRIBUTION SYSTEM											
City or Town	6"	8"	10"	12"	16"	24"	36"	42"	48"	60"	Totals
Providence.....	— 1,261.40	+ 6,110.85	0	+ 833.20	—258.26	—868.84	0	0	0	0	+ 4,555.55
Cranston.....	+ 5,272.31	+15,607.81	0	+ 322.70	0	0	+116.01	+51.12	+126.97	+2,239.89	+23,736.81
Johnston.....	+ 2,859.15	+10,860.26	0	0	0	0	0	0	0	0	+13,719.41
N. Providence	+ 3,457.11	+ 4,590.30	0	+1,906.25	0	0	0	0	0	0	+ 9,953.66
Totals.....	+10,327.17	+37,169.22	0	+3,062.15	—258.26	—868.84	+116.01	+51.12	+126.97	+2,239.89	+51,965.43

TABLE 27

Public Water Mains in Use on September 30, 1962

	Providence		Cranston		Johnston		North Providence		Total*		SPECIAL HIGH PRESSURE FIRE SERVICE Providence	
	Feet	Miles	Feet	Miles	Feet	Miles	Feet	Miles	Feet	Miles	Feet	Miles
6-inch.....	1,508,108.94	285.63	615,580.26	116.59	115,575.91	21.89	152,783.84	28.94	2,392,048.95	453.04	82.06	0.02
8-inch.....	337,842.98	63.89	298,940.87	56.62	142,300.59	26.95	105,921.96	20.06	884,506.40	167.52	1,800.32	0.34
10-inch.....	13,017.62	2.47	0	0	0	0	0	0	13,017.62	2.47	0	0
12-inch.....	238,387.25	45.15	100,129.60	18.96	9,421.81	1.78	32,633.90	6.18	380,572.56	72.08	6,893.80	1.31
16-inch.....	141,613.21	26.82	3,512.31	0.67	6,393.63	1.21	0	0	151,519.15	28.70	54,865.59	10.39
20-inch.....	19,775.66	3.75	0	0	0	0	0	0	19,775.66	3.75	0	0
24-inch.....	55,881.88	10.58	5,405.43	1.02	31,347.98	5.94	2,368.71	0.45	95,004.00	17.99	4,299.44	0.81
30-inch.....	43,631.87	8.26	31,894.62	6.04	0	0	3,753.06	0.71	79,279.55	15.02	0	0
36-inch.....	4,555.68	0.86	5,511.13	1.04	0	0	0	0	10,066.81	1.91	0	0
42-inch.....	2,893.25	0.55	22,607.49	4.28	0	0	0	0	25,500.74	4.83	0	0
48-inch.....	14,918.00	2.83	1,710.97	0.32	394.00	0.07	0	0	17,022.97	3.22	0	0
60-inch.....	5,559.00	1.05	12,910.89	2.45	4,340.00	0.82	0	0	22,809.89	4.32	0	0
66-inch.....	0	0	8,448.00	1.60	0	0	0	0	8,448.00	1.60	0	0
Totals.....	2,385,685.34	451.83	1,106,651.57	209.59	309,773.92	58.67	297,461.47	56.34	4,099,572.30	776.43	67,941.21	12.87

*Special High Pressure Fire Service Included.

¹Includes 691.45 feet of 6" main in Pawtucket.

²Includes 44.47 feet of 12" main in Pawtucket.

³Includes 146.00 feet of 12" main in Smithfield.

⁴Includes 179.30 feet of 6" main in Pawtucket.

Gates In Use on September 30, 1962

Note: Above table includes all gates in the special high pressure fire system in Providence (130) and gates on Neutaconkanut Conduit and Scituate Aqueduct east of the Siphon Chamber.

*Totals include 5-12 inch and 5-16 inch Rotary Plug Valves in Cranston, 5-16 inch Rotary Plug Valves in Johnston, and 6-16 inch, 2-20 inch and 1-48 inch Butterfly Valve in Providence, 1-36 inch, 1-42 inch, 1-48 inch, and 1-60 inch Butterfly Valve in Cranston.

TABLE 29

Service Pipes Installed and Removed for Year Ended September 30, 1962

City or Town	INSTALLED				REMOVED			
	General		Fire Supply	Total	General		Fire Supply	Total
	Copper ¾"-2"	Cast Iron 4"-8"	Cast Iron 4"-8"		Lead or Copper ½"-1½"	Cast Iron 2"-6"	Cast Iron 4"-8"	
Providence.....	282	11	18	311	330	15	12	357
Cranston.....	386	4	1	391	27	1	0	28
Johnston.....	139	1	0	140	14	0	0	14
North Providence.....	126	1	1	128	7	0	0	7
Totals.....	933	17	20	970	378	16	12	406

TABLE 30

Number and Size of Active Services As of September 30, 1962

	½"	¾"	¾"	1"	1¼"	1½"	2"	3"	4"	6"	8"	10"	12"	16"	24"	30"	Total
Providence.....	253	26,097	7,197	1,412	552	264	463	6	986	861	64	4	4	2	...	...	38,165
Cranston.....	5	7,110	7,217	984	45	235	240	...	72	68	23	...	4	...	1	1	16,005
Johnston.....	...	774	2,036	415	10	79	42	...	7	8	2	...	...	...	...	...	3,373
North Providence.....	...	1,092	1,954	465	6	138	54	...	17	8	3	...	1	...	...	...	3,738
Totals.....	258	35,073	18,404	3,276	613	716	799	6	1,082	945	92	4	9	2	1	1	61,281

TABLE 31
PUBLIC FIRE HYDRANTS

HYDRANT ACTIVITIES DURING YEAR ENDED SEPT. 30, 1962

	Providence	Cranston	Johnston	North Providence	Totals
Post Hydrants Installed.....	128	61	8	14	211
Post Hydrants Removed.....	13	12	4	5	34
Flush Hydrants Removed.....	100	0	0	0	100

HYDRANTS IN DISTRIBUTION SYSTEM ON SEPT. 30, 1962**

Post Hydrants	1,600	944	275	288	3,107
Flush Hydrants	1,553	0	0	0	1,553
Totals	*3,153	944	275	288	*4,660

*Includes 119 Post Hydrants and 42 Flush Hydrants in Special High Pressure Fire Service in Providence.

**Hydrant statistics in the City of Warwick and the East Smithfield Water District are not included, as those distribution systems are not owned or maintained by the Providence Water Works.

TABLE 32
NUMBER, MAKE AND SIZE OF METERS ON ACTIVE SERVICES
As of September 30, 1962

PROVIDENCE

Make	5/8"	3/4"	1"	1 1/2"	2"	3"	4"	6"	8"	10"	12"	16"	Total
Trident.....	23,675	2,422	703	966	1,243	89	72	59	14	5			29,248
Thomson.....	6,604	694	350	56	123	2	4						7,833
Empire.....	190	10	12	97	38	1	1						349
Crown.....	52	14	7	36	9		2						120
Hersey.....				2	3	2	13	70	6				96
Venturi.....												2	2
Totals.....	30,521	3,140	1,072	1,157	1,416	94	92	129	20	5		2	37,648

***CRANSTON**

Make	5/8"	3/4"	1"	1 1/2"	2"	3"	4"	6"	8"	10"	12"	16"	Total
Trident.....	11,998	699	289	207	214	2	6	13	2	1	1		13,432
Thomson.....	2,275	51	39	9	12								2,386
Empire.....	59	2		10	6								77
Crown.....				1									1
Hersey.....					1			3	4				8
Venturi.....											2		2
Totals.....	14,332	752	328	227	233	2	6	16	6	1	3		15,906

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

***JOHNSTON**

Make	5/8"	3/4"	1"	1 1/2"	2"	3"	4"	6"	8"	10"	12"	16"	Total
Trident.....	2,666	299	66	32	33				1				3,097
Thomson.....	254	12	4		1								271
Empire.....	1			3									4
Totals.....	2,921	311	70	35	34				1				3,372

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

***NORTH PROVIDENCE**

Make	5/8"	3/4"	1"	1 1/2"	2"	3"	4"	6"	8"	10"	12"	16"	Total
Trident.....	2,805	296	147	38	24	1	2	3			1		3,317
Thomson.....	391	7	7	1	1								407
Empire.....	1			4	1								6
Hersey.....								5					5
Totals.....	3,197	303	154	43	26	1	2	8			1		3,735

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

TABLE 33
CAPACITY AND CONSUMPTION

Year Ended September 30	Purification Works Capacity M.G.D.	Total During Year M.G.	Average M.G.D.	CONSUMPTION			Maximum Hour		
				Maximum Day			Rate in M.G.D.	Percent of Plant Capacity	Percent of Average Day
				Total M.G.D.	Percent of Plant Capacity	Percent of Average Day			
1941.....	61.6	11,020.9	30.2	40.8	66.2	135.1	66.7	108.3	220.9
1942.....	61.6	11,409.3	31.3	38.3	62.2	122.4	54.7	88.8	174.8
1943.....	61.6	11,586.8	31.7	46.7	75.8	147.3	77.0	125.0	242.9
1944.....	61.6	12,538.9	34.3	49.5	80.4	144.3	69.8	113.3	203.5
1945.....	61.6	12,528.9	34.3	43.6	70.8	127.1	71.3	115.7	207.9
1946.....	61.6	12,685.3	34.8	50.5	82.0	145.1	82.1	133.3	235.9
1947.....	61.6	13,169.0	36.1	49.8	80.8	138.0	71.8	116.6	198.7
1948.....	61.6	13,644.7	37.3	54.7	88.8	146.6	82.3	133.6	220.6
1949.....	61.6	13,510.3	37.0	60.2	97.7	162.7	89.3	145.0	241.4
1950.....	61.6	13,373.8	36.6	62.0	100.6	169.4	98.4	159.7	268.9
1951.....	61.6	13,721.6	37.6	56.4	91.6	150.0	91.2	148.1	242.6
1952.....	61.6	13,829.3	37.8	70.0	113.6	185.2	110.4	179.2	292.1
1953.....	61.6	14,182.8	38.9	66.4	107.8	170.7	100.8	163.6	259.1
1954.....	105.0	13,840.6	37.9	68.6	65.3	181.0	118.1	112.5	311.6
1955.....	105.0	14,933.0	40.9	70.2	66.9	171.6	117.1	111.5	286.3
1956.....	105.0	15,145.2	41.4	68.8	65.5	166.2	103.6	98.7	250.2
1957.....	105.0	15,963.8	43.7	84.7	80.7	193.8	131.0	124.8	299.8
1958.....	105.0	14,761.0	40.4	68.5	65.2	169.6	108.7	103.5	269.1
1959.....	105.0	15,430.0	42.3	71.1	67.7	168.1	111.5	106.2	263.6
1960.....	105.0	15,859.0	43.3	77.4	73.7	178.8	120.3	114.6	277.8
1961.....	105.0	16,495.9	45.2	69.3	66.0	153.3	112.3	107.0	248.5
1962.....	105.0	16,687.5	45.7	73.8	70.3	161.5	112.5	107.1	246.2

TABLE 34
CONSUMPTION OF WATER — MILLION GALLONS
Year Ended September 30, 1962

1961-1962	LOW SERVICE*			HIGH SERVICE†			TOTAL SERVICE*†					
	Max. Day	Min. Day	Avg. Day	Total	Max. Day	Min. Day	Avg. Day	Total	Max. Day	Min. Day	Avg. Day	Total
October.....	41.33	26.91	36.11	1,119.32	8.79	5.43	7.55	234.03	49.36	33.39	43.66	1,353.35
November.....	37.88	25.07	34.59	1,037.84	8.19	6.24	7.34	220.28	45.39	31.41	41.94	1,258.12
December.....	40.17	21.61	33.59	1,041.26	7.95	6.46	7.31	226.70	47.60	28.07	40.90	1,267.96
January.....	39.89	26.96	34.58	1,072.09	8.28	6.62	7.84	242.93	47.85	33.69	42.42	1,315.02
February.....	39.38	26.47	34.02	952.68	8.43	7.11	7.89	220.83	47.81	33.68	41.91	1,173.51
March.....	39.26	25.69	34.45	1,068.09	8.35	6.94	7.92	245.65	47.40	32.99	42.38	1,313.74
April.....	40.94	27.42	34.96	1,048.91	8.97	6.44	7.78	233.29	49.20	34.24	42.74	1,282.20
May.....	53.75	28.47	38.31	1,187.47	11.09	6.58	8.14	252.36	64.84	35.84	46.45	1,439.83
June.....	55.00	31.86	44.30	1,328.85	11.60	6.51	8.77	263.20	65.54	38.37	53.07	1,592.05
July.....	55.79	32.41	42.35	1,312.97	11.88	7.40	9.04	280.07	67.52	39.84	51.39	1,593.04
August.....	60.30	30.34	45.27	1,403.31	13.47	6.63	9.12	282.57	73.77	37.13	54.38	1,685.88
September.....	47.62	25.84	39.17	1,174.97	9.16	5.92	7.93	237.88	56.60	31.75	47.10	1,412.85
For Year	60.30(a)	21.61(b)	37.67	13,747.76	13.47(c)	5.43(d)	8.05	2,939.79	73.77(e)	28.07(f)	45.72	16,687.55**

(a) Aug. 6; (b) Dec. 25.

(c) Aug. 6; (d) Oct. 22.

(e) Aug. 6; (f) Dec. 25.

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

†Includes water supplied to East Smithfield Water Co.

**In addition to this amount, 119.66 M.G. were used in filling, testing, and disinfecting the new Aqueduct Reservoir.

TABLE 35

WATER SOLD TO STATE INSTITUTIONS, AND CITY OF WARWICK

Year Ended September 30, 1962

	STATE INSTITUTIONS					CITY OF WARWICK				
	S.S. 50,767 Sockanosset Rd. Cranston	S.S. 24,215A East St. Cranston	12" x 5.50" Venturi Meter	8" Tri-Prot. Meter	Average Gallons per Day	S.S. 47,269 Petta- consett Cranston	S.S. 47,475 Pawtuxet Bridge Cranston	S.S. 61,515 Oaklawn Avenue Cranston	S.S. 61,780 Dresden Street Cranston	Average Gallons per Day
1961-1962	Gallons per Month	Gallons per Month	Total Gallons per Month	Gallons per Month		10" Tri- Protectus Meter	6" Tri-Comp. Meter	6" Tri- Protectus Meter	6" Tri- Protectus Meter	Total Gallons per Month
October.....	42,548,000	2,025	42,550,025	1,372,581	1,372,581	74,348,100	1,504,500	4,326,900	4,600,425	84,779,925
November.....	31,357,000	5,625	31,362,625	1,045,421	1,045,421	68,655,300	286,350	4,072,725	4,748,775	77,763,150
December.....	33,163,000	0	33,163,000	1,069,774	1,069,774	56,642,643	Closed 11/14	4,080,600	3,814,875	64,538,118
January.....	35,382,000	12,975	35,394,975	1,141,773	1,141,773	78,200,430	"	4,850,625	5,548,725	88,599,780
February.....	28,940,000	16,500	28,956,500	1,034,161	1,034,161	66,351,900	"	3,944,400	3,858,225	74,154,525
March.....	31,180,000	3,375	31,183,375	1,005,915	1,005,915	72,225,100	"	4,409,250	4,831,200	81,465,550
April.....	36,877,000	6,375	36,883,375	1,229,446	1,229,446	52,821,819	339,750	4,351,500	5,655,300	63,168,369
May.....	43,478,000	5,325	43,483,325	1,402,688	1,402,688	100,059,200	1,957,500	7,217,475	13,538,700	122,772,875
June.....	39,399,000	525	39,399,525	1,313,318	1,313,318	104,013,633	2,193,900	9,361,425	17,828,400	133,397,358
July.....	47,556,000	34,575	47,590,575	1,535,180	1,535,180	115,126,846	3,874,875	11,340,150	27,070,725	157,412,596
August.....	46,505,000	525	46,505,525	1,500,178	1,500,178	111,529,133	2,945,475	11,275,725	22,422,000	148,172,333
September.....	41,065,000	0	41,065,000	1,368,833	1,368,833	104,333,704	1,691,025	5,697,900	9,196,875	120,919,504
For Year.....	457,450,000	87,825	457,537,825	1,253,528	1,253,528	1,004,307,808	14,793,375	74,928,675	123,114,225	1,217,144,083
										3,334,641

TABLE 36
WATER SOLD TO EAST SMITHFIELD WATER COMPANY AND
KENT COUNTY WATER AUTHORITY

Year Ended September 30, 1962

1961-1962	EAST SMITHFIELD WATER COMPANY				KENT COUNTY WATER AUTHORITY			
	S.S. 51,198 Waterman Street No. Prov. — 12" Tri-Crest Meter — Gallons per Month	S.S. 52,403 Dean Avenue Smithfield — 8" Tri-Crest Meter — Gallons per Month	Total Gallons per Month	Average Gallons per Day	S.S. 58,985 Oaklawn Avenue Cranston — 12" Tri-Crest Meter — Gallons per Month	S.S. 60,757 Purification Works Scituate — 12" Venturi Meter — Gallons per Month	Total Gallons per Month	Average Gallons per Day
October.....	5,751,000	4,227,000	9,978,000	321,871	6,172,500	16,599,000	22,771,500	734,565
November.....	5,815,500	3,741,750	9,557,250	318,575	5,627,250	16,966,000	22,593,250	753,108
December.....	5,029,500	4,068,000	9,097,500	293,468	5,271,000	15,651,000	20,922,000	674,903
January.....	6,207,000	4,532,250	10,739,250	346,427	5,923,500	16,449,000	22,372,500	721,694
February.....	5,922,000	3,182,250	9,104,250	325,152	4,557,000	15,143,000	19,700,000	703,571
March.....	6,572,250	4,403,250	10,975,500	354,048	5,652,000	14,564,000	20,216,000	652,129
April.....	6,014,250	4,301,250	10,315,500	343,850	4,047,750	12,165,000	16,212,750	540,425
May.....	6,894,750	5,086,500	11,981,250	386,492	6,281,250	15,283,000	21,564,250	695,621
June.....	7,374,750	3,723,000	11,097,750	369,925	6,340,500	20,995,000	27,335,500	911,183
July.....	8,927,250	4,058,250	12,985,500	418,887	7,101,000	21,894,000	28,995,000	935,323
August.....	9,212,250	4,514,250	13,726,500	442,790	6,941,250	20,035,000	26,976,250	870,202
September.....	7,700,250	3,651,750	11,352,000	378,400	4,759,500	15,619,000	20,378,500	679,283
For Year.....	81,420,750	49,489,500	130,910,250	358,658	68,674,500	201,363,000	270,037,500	739,829

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.	Average for Year
1877.....	.....	.....	.....	2.27	2.26	1.84	2.25	2.53	2.94	2.91	2.76	3.01	2.53†
1878.....	2.61	2.22	2.30	2.16	2.15	2.20	2.32	2.85	2.89	3.88	3.12	3.17	2.66
1879.....	2.84	2.39	2.38	2.82	2.93	2.59	2.38	3.22	3.48	3.78	3.52	3.32	2.97
1880.....	3.38	2.89	2.97	2.94	2.86	2.90	2.96	3.68	5.05	4.18	3.92	3.82	3.46
1881.....	3.67	3.35	3.22	3.54	4.07	3.13	2.98	3.54	3.81	4.05	4.46	4.16	3.66
1882.....	3.92	3.60	3.38	3.30	3.27	3.06	3.05	3.24	4.02	4.69	5.09	3.84	3.70
1883.....	3.40	3.33	3.65	3.94	3.74	3.91	3.43	3.82	4.64	5.24	5.18	4.70	4.08
1884.....	3.81	3.67	3.58	4.24	3.87	3.90	3.43	3.79	4.70	4.38	4.06	4.82	4.02
1885.....	4.24	3.67	3.99	4.48	4.73	4.80	4.10	4.10	5.44	5.56	5.01	4.92	4.59
1886.....	4.37	4.20	4.71	4.82	4.75	4.83	4.33	4.53	4.93	6.02	4.88	4.94	4.78
1887.....	4.62	4.24	4.94	5.06	4.90	4.84	4.41	4.90	5.16	5.58	5.00	5.08	4.89
1888.....	4.80	4.40	5.10	5.44	5.79	5.39	4.86	4.84	6.17	6.51	5.87	5.32	5.37
1889.....	5.34	5.18	5.51	5.72	7.34	5.80	5.27	5.75	6.14	5.69	5.59	5.52	5.74
1890.....	5.41	5.17	6.14	6.34	6.79	6.28	6.84	6.60	6.90	8.11	7.13	6.72	6.54
1891.....	6.28	6.08	6.83	6.35	6.53	6.72	6.67	7.55	7.75	7.73	7.78	7.57	6.99
1892.....	7.53	7.32	7.69	7.65	7.83	7.62	7.27	6.77	8.37	9.30	9.11	8.63	7.92
1893.....	8.00	7.65	8.48	9.30	8.85	8.74	8.07	8.58	9.92	10.78	10.50	9.48	9.03
1894.....	8.79	7.85	8.61	9.11	9.07	9.09	8.73	9.97	11.28	12.39	10.76	10.22	9.66
1895.....	10.20	8.86	9.08	9.02	9.82	8.60	7.70	8.78	9.49	8.99	9.50	9.10	9.10
1896.....	8.15	8.19	9.56	10.19	8.79	8.74	8.60	9.26	9.64	9.93	9.70	8.83	9.13
1897.....	8.49	8.05	8.98	8.83	8.52	8.44	8.06	8.27	8.90	9.13	8.70	9.07	8.62
1898.....	8.76	8.29	8.63	8.56	9.09	8.68	8.38	8.35	10.04	10.10	9.44	9.84	9.01
1899.....	8.94	8.75	9.64	9.45	9.53	8.91	8.52	9.18	11.18	10.21	10.12	9.70	9.51
1900.....	9.15	9.27	9.53	9.81	9.49	9.66	9.23	8.59	10.48	12.11	10.95	11.71	10.00
1901.....	9.99	9.54	9.95	10.09	10.52	10.20	8.92	10.05	11.50	12.02	11.69	11.15	10.47
1902.....	10.91	10.70	11.02	11.65	11.00	10.92	10.52	10.48	11.85	12.09	11.97	11.66	11.23
1903.....	11.89	11.81	12.85	12.84	12.62	11.92	12.33	13.92	13.02	13.54	12.91	13.76	12.78
1904.....	13.09	13.89	13.49	14.29	14.58	13.42	12.07	12.72	13.94	14.21	13.18	13.85	13.56
1905.....	14.57	14.88	14.60	14.20	14.65	13.88	13.85	14.77	15.06	16.34	14.30	13.99	14.59
1906.....	13.73	14.96	14.63	15.00	15.07	14.77	14.49	15.01	15.69	15.08	15.74	16.06	15.02
1907.....	15.02	14.37	14.25	15.74	16.24	16.26	15.62	16.29	17.18	18.50	18.00	15.02	16.04
1908.....	15.34	15.13	15.34	15.46	16.07	15.21	14.53	14.67	16.63	16.77	15.42	15.62	15.52
1909.....	15.83	15.80	15.44	15.16	14.87	14.88	13.94	14.04	15.54	17.71	16.15	14.80	15.35
1910.....	14.76	14.66	15.28	15.62	15.65	15.22	14.74	14.72	15.53	17.13	15.95	15.61	15.40
1911.....	15.56	14.98	16.11	16.39	16.27	16.00	15.30	16.19	17.09	19.36	17.09	16.08	16.37
1912.....	16.29	16.49	16.44	18.12	18.14	17.16	16.39	16.70	17.32	20.54	17.62	17.06	17.36
1913.....	17.36	16.72	17.17	17.49	17.98	17.59	17.06	17.12	18.95	19.55	18.40	17.12	17.71
1914.....	16.76	16.87	17.27	17.83	18.52	17.60	16.99	17.43	20.24	17.62	17.09	18.51	17.73
1915.....	17.29	16.43	17.27	17.07	17.60	17.44	16.80	16.68	18.04	16.49	16.76	17.80	17.14
1916.....	16.90	17.03	17.79	18.16	18.47	18.57	17.43	17.57	17.82	17.90	16.58	18.76	17.75
1917.....	18.51	18.08	18.50	19.73	20.62	19.31	18.09	17.67	18.28	19.61	20.03	18.76	18.93
1918.....	18.62	18.71	20.64	23.82	22.98	23.07	22.43	22.31	21.85	22.23	21.50	20.63	21.56
1919.....	20.42	20.31	21.04	21.72	20.94	19.35	19.45	19.60	21.77	20.70	20.40	20.68	20.53
1920.....	20.62	20.18	21.64	23.80	23.16	23.03	20.67	20.45	20.98	21.06	21.58	21.89	21.59

†Average for 9 months.

TABLE 37 (Continued)

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.	Average for Year
1921.....	21.41	20.46	20.97	21.64	21.43	20.77	20.21	20.92	22.84	21.18	21.63	22.86	21.36
1922.....	22.84	22.16	22.18	24.14	23.64	22.01	21.64	21.49	22.18	21.91	22.11	22.53	22.40
1923.....	22.78	23.23	23.08	23.66	24.96	23.84	22.95	24.12	24.49	23.90	24.08	24.31	23.78
1924.....	24.68	24.09	23.33	24.19	24.58	23.44	23.51	23.28	24.10	25.11	22.48	22.51	23.78
1925.....	22.84	23.70	23.76	24.22	23.61	22.70	23.13	23.03	24.82	23.54	23.20	23.81	23.53
1926.....	23.41	22.47	23.29	23.95	24.12	24.25	23.36	22.80	24.16	24.80	23.94	23.53	23.67
1927.....	21.76	22.60	23.24	22.92	22.41	22.57	22.32	22.68	23.62	23.27	22.27	23.27	22.74
1928.....	23.37	22.99	22.39	23.04	22.80	23.21	22.79	23.83	23.05	24.31	26.69	25.38	23.65
1929.....	26.82	25.54	26.17	26.84	27.01	25.42	23.05	22.91	25.73	26.53	24.94	24.24	25.43
1930.....	23.83	24.24	24.29	23.85	24.88	23.34	23.38	25.15	26.85	26.81	25.95	27.45	25.00
1931.....	26.30	24.04	23.80	23.71	24.36	23.64	23.11	23.76	25.35	26.20	26.22	26.31	24.73
1932.....	25.36	23.42	23.82	23.20	23.23	22.99	22.72	23.47	25.27	25.34	25.16	24.59	24.05
1933.....	24.15	23.65	23.51	24.00	24.25	24.01	23.41	25.32	26.92	28.77	27.65	26.00	25.14
1934.....	24.89	24.43	25.04	25.55	28.05	26.38	24.78	25.78	27.95	31.00	28.77	26.39	26.58
1935.....	26.50	25.39	25.16	26.35	27.06	26.31	25.71	27.02	27.47	29.47	31.14	28.23	27.15
1936.....	29.45	28.03	27.42	27.97	28.73	26.44	25.75	27.02	30.27	30.23	30.79	29.23	28.44
1937.....	27.94	26.72	27.06	25.77	26.13	27.16	25.73	25.93	28.45	31.43	31.85	29.18	29.79
1938.....	27.84	26.42	25.57	25.11	24.67	24.38	23.56	24.56	27.13	26.34	28.82	28.34	26.07
1939.....	27.90	27.21	26.85	27.07	27.62	27.16	26.25	27.48	30.84	32.81	33.62	30.31	28.77
1940.....	30.12	28.96	28.26	28.74	28.06	27.23	25.77	26.15	28.49	30.10	31.57	28.96	28.54
1941.....	29.55	27.86	28.36	28.67	29.02	28.78	29.07	29.91	31.74	32.87	32.66	33.78	30.19
1942.....	32.74	31.44	31.84	31.34	31.21	29.84	29.18	29.76	31.34	32.13	32.14	32.11	31.26
1943.....	29.88	29.27	30.40	29.93	30.67	30.35	30.05	29.65	35.13	36.35	35.47	33.71	31.74
1944.....	31.87	31.25	32.35	32.29	32.52	32.95	31.51	34.27	36.80	39.10	40.60	35.43	34.26
1945.....	33.77	32.77	33.33	34.89	34.57	33.78	33.27	33.23	35.44	35.73	36.34	34.67	34.32
1946.....	32.74	32.27	33.21	34.01	33.69	33.80	33.64	33.59	36.70	40.70	35.92	36.69	34.75
1947.....	36.37	35.34	35.58	35.95	35.83	35.01	33.27	33.94	35.72	37.35	39.34	39.21	36.08
1948.....	38.91	36.19	35.55	34.84	37.31	36.92	36.15	33.95	36.90	39.33	41.55	39.76	37.28
1949.....	36.27	35.34	35.11	33.98	34.00	33.88	33.12	35.12	46.65	44.56	40.18	35.77	37.01
1950.....	34.61	35.94	34.51	33.92	34.34	34.71	33.39	34.90	40.27	43.27	41.40	38.24	36.64
1951.....	39.96	36.91	34.80	36.10	35.92	34.81	34.21	37.21	39.31	43.49	39.98	38.20	37.59
1952.....	36.92	34.79	33.63	34.20	34.59	33.98	33.98	34.33	41.21	54.79	40.66	40.11	37.78
1953.....	37.09	35.75	35.27	34.59	33.95	34.20	34.61	35.63	50.68	46.76	43.63	43.95	38.86
1954.....	38.20	35.43	35.03	34.85	35.63	35.31	35.10	35.05	45.09	45.27	40.72	39.22	37.92
1955.....	39.84	37.82	37.17	37.24	38.42	37.85	37.00	41.54	44.52	49.90	47.08	42.25	40.91
1956.....	40.29	38.30	38.18	38.42	39.31	38.37	38.55	40.08	49.50	44.93	48.86	41.70	41.38
1957.....	40.78	38.65	36.74	39.14	38.43	36.98	38.50	44.48	60.45	57.12	48.16	45.16	43.74
1958.....	42.22	38.27	38.42	39.09	38.20	37.40	40.03	38.60	42.57	45.05	43.60	41.63	40.44
1959.....	40.35	38.01	39.35	39.34	39.46	38.65	39.04	44.02	45.05	45.16	51.33	47.28	42.27
1960.....	41.93	40.00	39.63	39.48	40.19	39.72	40.34	42.06	51.75	49.75	49.49	45.57	43.33
1961.....	42.22	42.53	40.99	41.24	43.54	42.26	41.00	42.96	51.71	51.06	52.80	50.01	45.19
1962.....	43.66	41.94	40.90	42.42	41.91	42.38	42.74	46.45	53.07	51.39	54.38	47.10	45.72

TABLE 38

FUEL OIL CONSUMPTION

For Year Ended September 30, 1962

1961-1962	Administration and Operations Building Gallons Used No. 6	Hydro Electric Station Gallons Used No. 2	Water Purification Plant Gallons Used No. 2	Forestry and Maintenance Building Gallons Used No. 2	Neutaconanut Pumping Station Gallons Used No. 2	Bath Street Pumping Station Gallons Used No. 2	Total	
							No. 2	No. 6
October.....	3,457	62	595	2,560	125	0	782	6,017
November.....	5,246	271	34	6,242	546	185	1,036	11,488
December.....	4,658	389	0	7,766	782	400	3,728	12,424
January.....	6,061	444	0	8,562	894	300	4,169	14,623
February.....	5,059	477	0	7,625	958	470	4,367	12,684
March.....	4,540	307	0	8,366	617	340	3,385	12,906
April.....	2,582	125	0	5,326	253	0	1,795	7,908
May.....	1,858	143	523	2,525	287	0	1,082	4,383
June.....	653	30	1,253	0	60	0	1,343	653
July.....	295	0	1,096	0	0	0	1,096	295
August.....	703	0	1,026	0	0	0	1,226	703
September.....	2,245	0	906	1,053	0	0	1,032	3,298
Totals.....	37,357	2,248	5,433	50,025	11,143	1,695	25,041	87,382

TABLE 39
FINANCIAL STATEMENT OF THE PROVIDENCE WATER SUPPLY BOARD
For the Year Ended September 30, 1962

REVENUE

Water Rents	\$2,794,556.45
Hydrant Rental	95,997.09
Electric Power	18,491.40
Setting Meters	5,536.50
Repairing Meters	1,309.84
Rents from Non-Operating Property.....	631.14
Repairs to Water Services.....	1,789.81
Repairs to Distribution Mains.....	3,882.71
Repairs to Hydrants	2,516.86
Repairs to Gates and Valves.....	1,942.85
Installation of New Fire Supplies.....	4,330.00
Installation of New Water Services.....	95,864.00
Installation of New Water Mains.....	166,134.90
Revolving Fund—Water Meters	6,549.32
Sale of Scrap Iron, Brass, Lead, Etc.....	7,287.81
Sale of Lumber, Pulpwood, Etc.....	753.87
Sale of Obsolete Equipment.....	241.80
Sale of Material	639.47
Sale of Abandoned Mains.....	26,477.30
Sundries	393.08
Total Revenue	\$3,235,326.20

DISBURSEMENTS

OPERATING EXPENSE:

Salaries	\$830,620.50
Services Other Than Personal.....	116,874.63
Materials and Supplies	258,999.60
Special Items	13,722.82
Capital Outlay	61,002.56
Other Structures and Improvements (Water Main Extensions).....	199,658.69
Taxes	381,990.94
Employees' Retirement System	71,115.00
Social Security F.O.A.S.I.	24,323.73
Total Operating Expense	*\$1,958,308.47
Interest on Bonds	547,500.00
Depreciation and Extension Fund.....	350,000.00
Payable to Sinking Fund.....	** 379,517.73
Total Disbursements	\$3,235,326.20
Gross Water Rents	\$2,879,727.17
Minus Refunds (Current Year)	85,056.40
Minus Refunds (Prior Year)	114.32
Net Water Rents.....	\$2,794,556.45

*See Table 40 for detailed account of Operating Expense.

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

TABLE 40

WATER SUPPLY BOARD OPERATING EXPENSES

For the Year Ended September 30, 1962

ADMINISTRATIVE

Salaries:

001	Officials	\$21,919.76	
	Clerical—Chief Engineer's Office.....	3,750.26	
	Clerical—Accounting	42,923.44	
	Engineering	57,518.68	
	Labor—General	11,382.60	
008	Sick Leave Payrolls.....	2,221.09	
009	Vacation Payrolls	6,507.77	
	Total		\$146,223.60

Services Other Than Personal:

102	Expert Consultant and Other Service Fees.....	\$ 15.00	
109	Fees Not Otherwise Classified.....	21.50	
111	Telephone and Telegraph.....	2,080.06	
112	Postage, Freight and Express.....	93.83	
115	Transportation of Persons—Conventions.....	5.05	
116	Transportation of Persons—Other.....	24.68	
117	Travel Subsistence—Conventions	21.80	
118	Travel Subsistence—Other	85.41	
121	Printing, Binding and Reproduction Services.....	1,716.31	
122	Advertising	24.32	
131	Light and Power.....	1,726.12	
141	Repairs—Office Machinery	431.73	
142	Repairs—Automobiles	509.18	
143	Repairs—Other Automotive Equipment.....	79.95	
146	Repairs—Plant Equipment	691.13	
150	Repairs—Structures and Improvements.....	4,627.00	
151	Maintenance and Servicing.....	274.55	
159	Repairs—Other Structures	89.50	
181	Laundry and Cleaning.....	108.00	
183	Dues and Subscriptions.....	187.50	
199	Miscellaneous Services	9,544.96	
	Total	\$22,357.58	
	Outstanding Commitments	58.05	
	Total—Services Other Than Personal.....		\$ 22,415.63

Materials and Supplies:

201	Stationery and Office Supplies.....	\$ 1,119.04	
211	Motor Fuel	800.02	
212	Lubricants	6.77	
213	Tires and Tubes	30.75	
214	Repair Parts and Supplies—Trucks and Autos.....	312.45	
222	Repair Parts and Supplies—Plant Equipment.....	138.60	
231	Medical, Chemical and Laboratory Supplies.....	13.71	
241	Fuel	895.21	
244	Housekeeping Supplies and Minor Equipment.....	470.07	
266	Lumber and Hardware.....	85.61	
268	Plumbing and Electrical Supplies.....	57.64	
272	Valves and Fittings	4.53	
299	Miscellaneous Materials and Supplies.....	138.65	
	Total	\$ 4,073.05	
	Outstanding Commitments	42.82	
	Total—Materials and Supplies.....		\$ 4,115.87

Special Items:

350	Blue Cross and Physicians Service.....	\$ 2,368.20	
	Total		\$ 2,368.20

Capital Outlay:

501	Office Furniture, Machinery and Equipment.....	\$ 1,430.32	
502	Books, Maps and Charts.....	119.81	
511	Automobiles	1,879.00	
	Total	\$ 3,429.13	
	Outstanding Commitments	Nil	
	Total—Capital Outlay	\$ 3,429.13	
	Total—Administrative		\$ 178,552.43

SOURCE OF SUPPLY

Hydro Electric Station:

Salaries:

001	Labor—Operation	\$ 8,873.86	
	Care of Grounds.....	38.01	
	Total		\$ 8,911.87

Services Other Than Personal:

111	Telephone and Telegraph.....	\$ 134.87	
141	Repairs—Office Machinery	3.00	
146	Repairs—Plant Equipment	93.69	
149	Repairs—Other Equipment	1,817.55	
199	Miscellaneous Services	145.00	
	Total		\$ 2,194.11

Materials and Supplies:

201	Stationery and Office Supplies.....	\$ 45.44	
212	Lubricants	146.86	
222	Repair Parts and Supplies—Plant Equipment.....	207.12	
241	Fuel	235.33	
	Total		\$ 634.75

Water Purification Plant:

Salaries:

001	Supervision	\$11,947.77	
	Labor—Operation	46,420.51	
	Technical	24,697.91	
	Clerical—Laboratory	3,574.93	
	Repairs—Machinery and Equipment	953.73	
	Repairs—Care of Grounds and Buildings.....	3,120.00	
	Total		\$ 90,714.85

Services Other Than Personal:

111	Telephone and Telegraph.....	\$ 1,118.55	
112	Postage, Freight and Express.....	37.60	
115	Transportation of Persons—Conventions	4.97	
117	Travel Subsistence—Conventions	11.50	
121	Printing and Binding	119.03	
131	Heat, Light and Power (Gas).....	9.49	
141	Repairs—Office Machinery	458.76	
142	Repairs—Trucks and Autos	30.88	
143	Repairs—Construction and Other Automotive Equipment.....	12.95	
146	Repairs—Plant Equipment	4,963.78	
150	Repairs—Structures and Improvements	200.00	
151	Maintenance and Servicing	403.07	
181	Laundry and Cleaning	416.51	
183	Dues and Subscriptions	8.50	
199	Miscellaneous Services	208.20	
	Total		\$ 8,003.79

Materials and Supplies:

201	Stationery and Office Supplies.....	\$ 616.69	
202	Small Tools and Shop Supplies.....	1,126.89	
204	Wearing Apparel and Personal Supplies.....	2.94	
211	Motor Fuel	1,592.54	
212	Lubricants	36.41	
213	Tires and Tubes.....	76.64	
214	Repair Parts and Supplies—Trucks and Autos.....	177.55	
222	Repair Parts and Supplies—Plant Equipment.....	853.25	
231	Ferric Sulphate	43,838.40	
231	Lime	15,157.61	
231	Chlorine	4,050.00	
231	Sodium Silicofluoride	17,094.35	
231	Miscellaneous Laboratory Supplies.....	1,825.34	
241	Fuel	3,864.87	
244	Housekeeping Supplies	450.81	
252	Seeds, Fertilizer, Trees and Shrubs.....	277.70	
260	Loam	191.10	
264	Fabricated Cement Products.....	163.46	
265	Fabricated Metal Products.....	701.59	
266	Lumber and Hardware	505.52	
267	Paint and Painters' Supplies.....	1,509.95	
268	Plumbing and Electrical Supplies.....	1,043.58	
269	Construction and Maintenance Materials and Supplies Not Other- wise Classified	55.70	
271	Pipe	55.72	
272	Valves and Fittings	149.66	
273	Special Castings	93.00	
299	Miscellaneous Materials and Supplies.....	43.10	
Total			\$ 95,554.37

Special Items:

302	Liability Insurance	\$ 62.00	
Total			\$ 62.00

Capital Outlay:

502	Books, Maps and Charts.....	\$ 26.55	
511	Automobiles	1,531.67	
541	Medical, Surgical and Laboratory Equipment.....	901.10	
561	Shop and Plant Equipment.....	8,615.92	
Total			\$ 11,075.24

Scituate Reservoir:**Salaries:**

001	Labor—Operation	\$ 4,635.20	
	Repairs—Care of Grounds.....	5,791.29	
	Repairs—Structures and Improvements.....	2,342.20	
Total			\$ 12,768.69

Services Other Than Personal:

111	Telephone and Telegraph.....	\$ 103.39	
142	Repairs—Trucks and Autos.....	150.70	
Total			\$ 254.09

Materials and Supplies:

213	Tires and Tubes.....	\$ 129.28	
214	Repair Parts and Supplies—Trucks and Autos.....	59.35	
252	Seeds, Fertilizer, Trees and Shrubs.....	1,841.69	
260	Loam	90.00	
262	Cement, Plaster and Related Products.....	24.41	
266	Lumber and Hardware.....	2,684.00	
Total			\$ 4,828.73

Other Reservoirs:**Salaries:**

001 Labor—Operation	\$ 4,684.09	
Repairs—Care of Grounds.....	4,830.97	
Total		\$ 9,515.06

Services Other Than Personal:

142 Repairs—Trucks and Autos.....	\$ 168.13	
Total		\$ 168.13

Materials and Supplies:

213 Tires and Tubes	\$ 120.97	
214 Repair Parts and Supplies—Trucks and Autos.....	47.40	
Total		\$ 168.37

Forestry and Maintenance:**Salaries:**

001 Supervision	\$ 5,594.06	
Labor—Operation	2,121.90	
Repairs—Care of Grounds.....	12,169.63	
Total		\$ 19,885.59

Services Other Than Personal:

102 Expert Consultant and Other Service Fees.....	\$ 45.00	
109 Fees Not Otherwise Classified.....	2.00	
111 Telephone and Telegraph	149.45	
115 Transportation of Persons—Conventions.....	9.95	
117 Travel Subsistence—Conventions	46.66	
142 Repairs—Trucks and Autos	320.87	
143 Repairs—Construction and Other Automotive Equipment.....	107.59	
146 Repairs—Plant Equipment	66.37	
149 Repairs—Other Equipment	108.75	
150 Repairs—Structures and Improvements.....	212.99	
163 Rental—Other Equipment	5.00	
183 Dues and Subscriptions.....	9.00	
199 Miscellaneous Services	12.00	
Total		\$ 1,095.63

Materials and Supplies:

201 Stationery and Office Supplies.....	\$ 35.58	
202 Small Tools and Shop Supplies.....	220.91	
204 Wearing Apparel and Personal Supplies.....	330.85	
212 Lubricants	65.40	
213 Tires and Tubes.....	509.34	
214 Repair Parts and Supplies—Trucks and Autos.....	652.47	
229 Repair Parts and Supplies—Other Equipment.....	47.85	
231 Medical, Chemical and Laboratory Supplies.....	31.60	
241 Fuel	1,614.84	
244 Housekeeping Supplies and Minor Equipment.....	37.22	
252 Seeds, Fertilizer, Trees and Shrubs.....	704.42	
259 Other Agricultural, Horticultural and Landscaping Supplies.....	1,029.28	
261 Gravel, Sand and Stone.....	86.87	
266 Lumber and Hardware	173.30	
267 Paint and Painters' Supplies.....	221.93	
299 Miscellaneous Materials and Supplies.....	123.28	
Total		\$ 5,885.14

Capital Outlay:

502 Books, Maps and Charts.....	\$ 10.24	
571 Agricultural and Landscaping Equipment.....	1,774.86	
Total		\$ 1,785.10

General:**Salaries:**

001	Clerical	\$ 1,526.97	
	Labor—Operation	6,333.81	
	Repairs—Machinery and Equipment	17.50	
	Repairs—Care of Grounds	5,361.11	
	Repairs—Care of Grounds—Rockland Cemetery	550.26	
008	Sick Leave Payrolls	3,941.01	
009	Vacation Payrolls	6,398.73	
	Total		\$ 24,129.39

Services Other Than Personal:

109	Fees Not Otherwise Classified	\$ 27.50	
112	Postage, Freight and Express	23.84	
121	Printing and Binding	156.19	
143	Repairs—Construction and Other Automotive Equipment	140.80	
149	Repairs—Other Equipment	1,738.50	
199	Miscellaneous Services	71.50	
	Total		\$ 2,158.33

Materials and Supplies:

201	Stationery and Office Supplies	\$ 23.84	
212	Lubricants	243.70	
214	Repair Parts and Supplies—Trucks and Autos	52.74	
244	Housekeeping Supplies and Minor Equipment	215.61	
266	Lumber and Hardware	6.47	
268	Plumbing and Electrical Supplies	7.88	
269	Construction and Maintenance Materials and Supplies Not Otherwise Classified	149.56	
299	Miscellaneous Materials and Supplies	496.64	
	Total		\$ 1,196.44

Special Items:

350	Blue Cross and Physicians Service	\$ 2,215.40	
	Total		\$ 2,215.40
	Outstanding Commitments—Services Other Than Personal	Nil	
	Outstanding Commitments—Materials and Supplies	6,038.94	
	Outstanding Commitments—Capital Outlay	25,740.00	
	Total—Source of Supply		\$ 334,984.01

TRANSMISSION AND DISTRIBUTION**Pumping Station:****Salaries:**

001	Labor—Operation	\$20,192.16	
	Total		\$ 20,192.16

Services Other Than Personal:

102	Expert Consultant and Other Service Fees	\$ 25.00	
109	Fees Not Otherwise Classified	101.31	
111	Telephone and Telegraph	478.73	
131	Light and Power	21,112.63	
146	Repairs—Plant Equipment	431.30	
150	Repairs—Buildings	2,436.73	
151	Maintenance and Servicing	367.89	
159	Repairs—Other Structures	43.00	
181	Laundry and Cleaning	48.00	
199	Miscellaneous Services	174.00	
	Total		\$ 25,218.59

Materials and Supplies:

201	Stationery and Office Supplies.....	\$ 36.55	
211	Motor Fuel	194.85	
222	Repair Parts and Supplies—Plant Equipment.....	263.61	
241	Fuel	609.34	
252	Seeds, Fertilizer, Trees and Shrubs.....	35.00	
259	Other Agricultural, Horticultural and Landscaping Supplies.....	122.45	
264	Fabricated Cement Products.....	121.52	
267	Paint and Painters' Supplies.....	15.23	
271	Pipe	47.77	
272	Valves and Fittings.....	1,205.02	
299	Miscellaneous Materials and Supplies.....	12.25	
Total			\$ 2,663.59

Pipe Lines:

Salaries:

001	Supervision	\$ 6,643.00	
	Clerical	6,365.98	
	Labor—Operation	122,300.64	
	Repairs—Trucks and Autos.....	8,479.08	
	Repairs—Care of Grounds and Buildings.....	8,647.41	
	Repairs—Transmission Mains	391.29	
	Repairs—Distribution Mains	11,180.07	
	Repairs—Gates and Valves	22,153.84	
	Repairs—Hydrants	7,990.84	
	Repairs—Services	10,872.12	
	New Work—Distribution Mains.....	3,032.24	
	New Work—Gates and Valves.....	8,924.81	
	New Work—Hydrants	17,547.90	
	New Work—Services	45,931.57	
	New Work—Meters (Emergency).....	665.86	
	Retirement Work—Transmission Mains.....	84.39	
	Retirement Work—Distribution Mains.....	1,336.47	
	Retirement Work—Gates and Valves.....	306.59	
	Retirement Work—Hydrants	212.56	
	Retirement Work—Services	4,051.53	
Total			\$287,118.19

Services Other Than Personal:

102	Expert Consultant and Other Service Fees.....	\$ 165.00	
109	Fees Not Otherwise Classified.....	57.00	
111	Telephone and Telegraph.....	436.78	
112	Postage, Freight and Express.....	120.05	
131	Light and Power.....	545.94	
141	Repairs—Office Machinery	27.02	
142	Repairs—Trucks and Autos.....	2,426.80	
143	Repairs—Construction and Other Automotive Equipment.....	1,976.33	
146	Repairs—Plant Equipment	1,019.45	
149	Repairs—Other Equipment	5.88	
151	Maintenance and Servicing.....	593.62	
153	Repairs—Street Openings	9,993.10	
163	Rental—Other Equipment	501.20	
165	Rental of Land.....	273.00	
181	Laundry and Cleaning.....	94.69	
199	Miscellaneous Services	292.96	
Total			\$ 18,528.82

Materials and Supplies:

201	Stationery and Office Supplies.....	\$ 608.77	
202	Small Tools and Shop Supplies.....	2,526.27	
204	Wearing Apparel and Personal Supplies.....	360.66	
211	Motor Fuel	4,954.52	
212	Lubricants	507.24	
213	Tires and Tubes.....	830.40	
214	Repair Parts and Supplies—Trucks and Autos.....	3,357.19	
231	Medical, Chemical and Laboratory Supplies.....	243.23	
241	Fuel—Kerosene Oil	245.50	
244	Housekeeping Supplies and Minor Equipment.....	166.37	

261	Gravel, Sand and Stone.....	300.59
262	Cement, Plaster and Related Products.....	490.98
264	Fabricated Cement Products.....	134.41
265	Fabricated Metal Products.....	21.22
266	Lumber and Hardware.....	671.93
267	Paint and Painters' Supplies.....	92.95
268	Plumbing and Electrical Supplies.....	5,707.10
269	Construction and Maintenance Materials and Supplies Not Other- wise Classified	8.50
271	Pipe—Cast Iron	3,447.06
271	Pipe—Service	6,758.15
271	Pipe—Asbestos Cement	2,398.49
271	Pipe—Other	106.14
272	Hydrants, Valves and Fittings.....	66,914.67
272	Gates and Valves.....	19,222.78
273	Special Castings	535.50
279	Water System Materials and Supplies Not Otherwise Classified.....	6.28
299	Miscellaneous Materials and Supplies.....	260.68

Total \$120,877.58

Special Items:

331	Payment of Claims and Damages.....	\$ 598.68
Total	.....	\$ 598.68

Capital Outlay:

511	Automobiles	\$ 1,531.67
512	Trucks and Tractors.....	12,194.84
521	Construction and Engineering Equipment.....	3,307.90
Total	.....	\$ 17,034.41

Other Structures and Improvements:

721	New Main Extensions.....	\$181,395.68
Total	.....	\$181,395.68

Distribution Reservoirs:

Services Other Than Personal:

111	Telephone and Telegraph.....	\$ 126.00
131	Light and Power.....	40.25
Total	.....	\$ 166.25

Materials and Supplies:

222	Repair Parts and Supplies—Plant Equipment.....	\$ 15.80
Total	.....	\$ 15.80

General:

Salaries:

001	Labor—Operation	\$ 2,502.46
	Repairs—Structures and Improvements.....	4,402.97
	Repairs—Trucks and Autos.....	1,439.12
	Repairs—Machinery and Equipment.....	292.14
008	Sick Leave Payrolls.....	9,146.25
009	Vacation Payrolls	12,081.40
025	Injured Employees' Payrolls.....	3,059.88
Total	.....	\$ 32,924.22

Services Other Than Personal:

181	Laundry and Cleaning.....	\$ 108.00
199	Miscellaneous Services	36.00
Total	.....	\$ 144.00

Materials and Supplies:

241	Fuel	\$	615.12	
266	Lumber and Hardware.....		7.94	
	Total	\$		623.06

Special Items:

350	Blue Cross and Physicians Service.....	\$	4,467.40	
	Total	\$	4,467.40	
	Outstanding Commitments—Services Other Than Personal.....		295.64	
	Outstanding Commitments—Materials and Supplies.....		2,221.73	
	Outstanding Commitments—New Main Extensions.....		18,263.01	
	Total—Transmission and Distribution.....			\$ 732,748.81

METERING**Salaries:**

001	Supervision	\$	14,135.18	
	Clerical		52,069.66	
	Labor—Operation		42,700.06	
	Repairing Meters		10,994.03	
	Removing and Setting Meters.....		18,385.90	
	Testing Meters		4,297.82	
	Inspection—Services		4,085.62	
	General—Operation		17,639.68	
008	Sick Leave Payrolls.....		5,306.45	
009	Vacation Payrolls		8,347.95	
025	Injured Employees' Payroll.....		274.53	
	Total			\$178,236.88

Services Other Than Personal:

102	Expert Consultant and Other Service Fees.....	\$	70.00	
109	Fees Not Otherwise Classified.....		25.50	
111	Telephone and Telegraph.....		1,965.46	
112	Postage, Freight and Express.....		947.20	
116	Transportation of Persons—Carfares.....		910.35	
121	Printing and Binding.....		49.04	
131	Light and Power		1,700.00	
141	Repairs—Office Machinery, Furniture and Furnishings.....		1,236.93	
142	Repairs—Trucks and Autos.....		1,672.26	
151	Maintenance and Servicing.....		322.84	
181	Laundry and Cleaning.....		108.00	
199	Miscellaneous Services		27,224.04	
	Total			\$ 36,231.62

Materials and Supplies:

201	Stationery and Office Supplies.....	\$	2,204.60	
202	Small Tools and Shop Supplies.....		336.86	
204	Wearing Apparel and Personal Supplies.....		380.40	
211	Motor Fuel		1,911.49	
212	Lubricants		95.65	
213	Tires and Tubes.....		512.27	
214	Repair Parts and Supplies—Trucks and Autos.....		497.93	
222	Repair Parts and Supplies—Machinery and Equipment.....		6.00	
231	Medical, Chemical and Laboratory Supplies.....		86.97	
241	Fuel		596.23	
244	Housekeeping Supplies and Minor Equipment.....		401.38	
252	Seeds, Fertilizer, Trees and Shrubs.....		53.62	
259	Other Agricultural, Horticultural and Landscaping Supplies.....		9.58	
266	Lumber and Hardware.....		64.00	
267	Paint and Painters' Supplies.....		44.10	
268	Plumbing and Electrical Supplies.....		451.58	
272	Valves and Fittings.....		418.23	
274	Meter Parts		1,667.60	
299	Miscellaneous Materials and Supplies.....		150.00	
	Total			\$ 9,888.49

Special Items:

331	Payments for Claims and Damages.....	\$ 1,009.54	
350	Blue Cross and Physicians Service.....	3,001.60	
	Total		\$ 4,011.14

Capital Outlay:

501	Office Furniture, Machinery and Equipment.....	\$ 554.02	
511	Trucks and Autos.....	1,384.66	
	Total		\$ 1,938.68
	Outstanding Commitments—Services Other Than Personal.....	Nil	
	Outstanding Commitments—Materials and Supplies.....	4,286.74	
	Outstanding Commitments—Capital Outlay.....	Nil	
	Total—Metering		\$ 234,593.55
	Taxes		381,990.94
	Employees' Retirement System.....		71,115.00
	Social Security F.O.A.S.I.....		24,323.73
	TOTAL OPERATING EXPENSE.....		\$1,958,308.47

TABLE 41
STATEMENT OF REVENUE — ESTIMATED AND ACTUAL
For the Year Ended September 30, 1962

Account	Estimated Revenue	Actual Revenue
Water Rents	\$2,685,000.00	\$2,794,556.45
Hydrant Rental	93,000.00	95,997.09
Electricity	26,000.00	18,491.40
Stores Account (Meters)	7,000.00	6,549.32
Repairing and Setting Meters.....	6,500.00	6,846.34
Fire Supplies and Miscellaneous Repairs.....	9,500.00	14,462.23
New Service Installations.....	75,000.00	95,864.00
New Main Extensions.....	90,000.00	166,134.90
Rentals	1,000.00	631.14
Other Miscellaneous Receipts.....	12,000.00	35,793.33
Total	\$3,005,000.00	\$3,235,326.20

TABLE 42
SUMMARY OF ANNUAL WATER WORKS REVENUES 1930-1962

Fiscal Years Ended September 30	Receipts from Sale of Water	Miscellaneous Receipts	Total
1930.....	\$1,384,369.54	\$218,844.87	\$1,603,214.41
1931.....	1,414,836.00	237,172.64	1,652,008.64
1932.....	1,375,450.77	223,058.31	1,598,509.08
1933.....	1,345,444.69	212,066.79	1,557,511.48
1934.....	1,387,876.73	184,133.47	1,572,010.20
1935.....	1,409,269.47	237,518.68	1,646,788.15
1936.....	1,427,881.10	265,357.71	1,693,238.81
1937.....	1,429,107.08	229,317.39	1,721,424.47
1938.....	1,426,986.49	106,359.70	1,533,346.19
1939.....	1,491,918.63	124,901.37	1,616,820.00
1940.....	1,551,917.24	115,540.98	1,667,458.22
1941.....	1,615,351.79	114,960.58	1,730,312.37
1942.....	1,679,058.50	103,368.22	1,782,426.72
1943.....	1,629,268.35	86,580.98	1,715,849.33
1944.....	1,761,016.12	87,946.71	1,848,962.83
1945.....	1,812,311.82	99,271.44	1,911,583.26
1946.....	1,808,993.17	123,247.90	1,932,241.07
1947.....	1,877,471.18	124,372.47	2,001,843.65
1948.....	2,005,242.58	222,419.41	2,227,661.99
1949.....	2,031,633.37	229,317.72	2,260,951.09
1950.....	2,082,814.82	199,061.80	2,281,876.62
1951.....	2,078,209.84	214,868.70	2,293,078.54
1952.....	2,053,427.76	322,761.07	2,376,188.83
1953.....	2,093,625.85	343,477.23	2,437,103.08
1954.....	2,146,947.18	302,707.38	2,449,654.56
1955.....	2,166,180.84	379,010.13	2,545,190.97
1956.....	2,236,331.86	371,715.61	2,608,047.47
1957.....	2,262,879.80	322,948.62	2,585,828.42
1958.....	2,273,583.77	318,752.87	2,592,336.64
1959.....	2,255,865.23	374,493.67	2,630,358.90
1960.....	2,528,805.97	330,120.32	2,858,926.29
1961.....	2,758,603.26	351,179.65	3,109,782.91
1962.....	2,794,556.45	440,769.75	3,235,326.20

TABLE 43**STATEMENT OF WATER WORKS DEPRECIATION AND EXTENSION FUND**

	Investment	Cash	Due from Other Funds	Total
Balance September 30, 1961.....	\$358,000.00	\$ 88,450.64	\$350,000.00	\$796,450.64
Increase During Year Ended September 30, 1962.....	1,064,000.00	1,486,740.13	.....	.....
Disbursements During Year Ended September 30, 1962...	1,122,000.00	1,393,719.53	350,000.00	.....
Accounts Receivable Year Ended September 30, 1962.....	.....	.....	350,000.00	.....
Balance September 30, 1962.....	\$300,000.00	\$181,471.24	\$350,000.00	\$831,471.24

TABLE 44

**STATEMENT OF WATER SUPPLY BOARD BONDS OUTSTANDING AND
SINKING FUND REQUIREMENTS ON A 3% BASIS**

As of September 30, 1962

Bonds Payable from Sinking Fund	Rate of Interest %	Year of Issue	Maturity	Bonds Issued	Bonds Outstanding	Sinking Fund Requirements On a 3% Basis
Water Supply	4	1922	1962	\$2,500,000.00	\$ 2,500,000.00	\$2,454,869.48
Water Supply	4½	1924	1964	2,000,000.00	2,000,000.00	1,871,126.55
Water Supply	4	1924	1964	1,500,000.00	1,500,000.00	1,355,934.78
Water Supply	4	1925	1965	2,500,000.00	2,500,000.00	2,210,524.74
Water Supply	4	1928	1968	1,500,000.00	1,500,000.00	1,174,102.39
Total Water Supply Debt and Sinking Fund Requirements.....					\$10,000,000.00	\$9,066,557.94
Sinking Fund Assets Allocated to Water Supply Debt per City Controller's Report on Sinking Fund Sep- tember 30, 1962 (Includes \$379,517.73 *Water Operating Balance for Year Ended September 30, 1962 plus Prior Year Adjustments of \$981.30 or a total of \$380,499.03).....						\$9,455,035.23
Amount of Surplus of Requirements on 3% Basis.....						\$ 388,477.29

*Subject to change due to anticipated discounts on Outstanding Commitments, see Table No. 40.

TABLE 45
A SUMMARY OF INVENTORIES OF PERSONAL PROPERTY
At September 30, 1962

REMOVABLE PROPERTY INVENTORY.....		\$150,525.11
SOURCE OF SUPPLY:		
Hydro-Electric Station	\$ 7,538.72	
Purification Works	31,139.31	
Laboratory	2,193.29	
General	3,390.34	
		44,261.66
TRANSMISSION AND DISTRIBUTION:		
Pipe Lines	\$127,232.57	
Pumping Stations	199.36	
Garage	6,501.44	
		133,933.37
METERING		37,575.92
SUPPLIES		3,794.37
Total Personal Property Inventory.....		\$370,090.43

TABLE 46
STATEMENT OF STORES REVOLVING FUND
For the Year Ended September 30, 1962

Cash Balance September 30, 1961.....		\$10,000.00
Outstanding Commitments September 30, 1961.....		7,190.40
Receipts—October 1, 1961 to September 30, 1962.....		69,429.52
Total Available		\$86,619.92
Disbursements September 30, 1962.....	\$57,437.90	
Outstanding Commitments September 30, 1962.....	12,632.70	
Transferred as Income to General Fund.....	6,549.32	
Total Disbursements		76,619.92
Cash Balance September 30, 1962.....		\$10,000.00

TABLE 47
STATEMENT OF THE MISCELLANEOUS WATER MAIN EXTENSIONS ACCOUNT
For the Year Ended September 30, 1962

Transferred from Depreciation and Extension Fund—July 29, 1957.....		\$ 15,000.00
Transferred from Depreciation and Extension Fund—July 15, 1958.....		50,000.00
Transferred from Depreciation and Extension Fund—May 21, 1959.....		60,000.00
Transferred from Depreciation and Extension Fund—July 7, 1961.....		35,000.00
Transferred from Depreciation and Extension Fund—July 24, 1962.....		75,000.00
Total Available		\$235,000.00
Disbursements September 30, 1962.....	\$178,092.75	
Outstanding Commitments September 30, 1962.....	3,066.50	
Total Disbursements		181,159.25
Cash Balance September 30, 1962.....		\$ 53,840.75

TABLE 48

STATEMENT — ACCOUNT FOR INSERTING NEW VALVES

Transferred from Depreciation and Extension Fund—May 12, 1958.....		\$ 10,000.00
Transferred from Depreciation and Extension Fund—May 13, 1959.....		30,000.00
Transferred from Depreciation and Extension Fund—July 7, 1961.....		65,000.00
Transferred from Depreciation and Extension Fund—May 25, 1962.....		60,000.00
Total Available		<u>\$165,000.00</u>
Disbursements September 30, 1962.....	\$88,716.64	
Outstanding Commitments September 30, 1962.....	<u>38,597.00</u>	
Total Disbursements		<u>127,313.64</u>
Cash Balance September 30, 1962.....		<u>\$ 37,686.36</u>

TABLE 49

SPECIAL VALVE INSERTION ACCOUNT — WEBSTER AVENUE

Transferred from the Depreciation and Extension Fund—March 14, 1962.....		\$75,000.00
Disbursements—September 30, 1962.....	Nil	
Outstanding Commitments September 30, 1962.....	<u>\$66,590.00</u>	
Total Disbursements		<u>66,590.00</u>
Cash Balance September 30, 1962.....		<u>\$ 8,410.00</u>

TABLE 50

ADDITIONS, ALTERATIONS, AND IMPROVEMENTS AT THE WATER PURIFICATION WORKS

Authorized Bond Issue (Chapter 102, P. L. of R. I. 1959) Approved May 27, 1959—Acc't. 3-91.....		\$1,100,000.00
Authorized Bond Issue (Chapter 102, P. L. of R. I. 1959—Reforestation Garage) Approved May 27, 1959—Acc't. 3-92		300,000.00
Transferred from Depreciation and Extension Fund June 15, 1960—Acc't. 3-93.....		550,000.00
Transferred from Depreciation and Extension Fund June 5, 1962—Acc't. 3-93.....		120,000.00
Income from Deposits for Plans Not Returned.....		75.00
Total Available		<u>\$2,070,075.00</u>
Disbursements—September 30, 1962—Acc't. 3-91.....	\$982,042.87	
Outstanding Commitments—September 30, 1962—Acc't. 3-91.....	26,217.26	
Disbursements—September 30, 1962—Acc't. 3-92.....	67,146.16	
Outstanding Commitments—September 30, 1962—Acc't. 3-92.....	223,744.78	
Disbursements—September 30, 1962—Acc't. 3-93.....	666,264.02	
Outstanding Commitments—September 30, 1962—Acc't 3-93.....	<u>820.98</u>	
Total Disbursements		<u>1,966,236.07</u>
Unexpended Balance of Authorized Bond Issue.....		<u>\$ 103,838.93</u>

TABLE 51**NEW 40-MILLION GALLON WATER DISTRIBUTION RESERVOIR**

Authorized Bond Issue (Chapter 103, P. L. of R. I. 1959) Approved May 27, 1959.....		\$2,150,000.00
Transferred from "Construction of New Aqueduct Reservoir Account" Closed September 30, 1959.....		49,759.28
Income from Deposits for Plans Not Returned.....		150.00
Total Available		<u>\$2,199,909.28</u>
Disbursements—September 30, 1962	\$1,953,669.41	
Outstanding Commitments—September 30, 1962.....	124,530.20	
Total Disbursements		<u>2,078,199.61</u>
Unexpended Balance of Authorized Bond Issue.....		\$ 121,709.67

TABLE 52**LAND PURCHASE AT BARDEN RESERVOIR**

Transferred from Depreciation and Extension Fund—February 23, 1961.....		\$17,000.00
Disbursements—(Purchase of John Nemczuk Property).....		16,000.00
Cash Balance September 30, 1962.....		<u>\$ 1,000.00</u>

TABLE 53**STATEMENT — PITOMETER SURVEY ACCOUNT**

Transferred from Depreciation and Extension Fund March 14, 1961.....		\$15,000.00
Disbursements—September 30, 1962	\$14,992.14	
Outstanding Commitments—September 30, 1962.....	Nil	
Total Disbursements		<u>14,992.14</u>
Cash Balance September 30, 1962.....		\$ 7.86

TABLE 54
TAXES PAID TO VARIOUS CITIES AND TOWNS
(October 1, 1961 to September 30, 1962)

Location of Property	Land Area (Acres)	ASSESSED VALUATIONS			TAX	
		Land	Buildings and Improvements	Total	Rate per \$100	Amount Paid
City of Warwick.....	0.06	\$ 160.00	0	\$ 160.00	\$2.86	\$ 4.58
City of Cranston.....	110.19	28,220.00	\$ 942,340.00	970,560.00	3.40	32,999.04
Town of Foster.....	1,994.28	148,480.00	3,000.00	151,480.00	2.50	3,787.00
Town of Glocester.....	73.30	14,630.00	0	14,630.00	3.05	446.22
Town of Johnston.....	103.13	38,330.00	292,670.00	331,000.00	3.00	9,930.00
Town of North Providence.....	8.58	30,900.00	185,100.00	216,000.00	3.20	6,912.00
Town of Scituate.....	13,182.24	890,000.00	7,410,000.00*	8,300,000.00*	.....	327,850.00**
Total Real Estate.....	15,471.78	\$1,150,720.00	\$8,833,110.00	\$9,983,830.00	.....	\$381,928.84†

*Includes \$10,000.00 Tangible Personal.

**Three equal payments of \$80,925.00 @ \$3.90 per \$100 and one payment of \$85,075.00 @ \$4.10 per \$100 tax rate were made on \$8,300,000.00 total assessed valuation.

†In addition to this amount, \$52.80 was paid to the West Glocester Fire District and \$9.30 to the Harmony Fire District.

TABLE 55
SUMMARY OF STATISTICS
PROVIDENCE WATER SUPPLY BOARD
FOR THE YEAR ENDED SEPTEMBER 30, 1962

PROVIDENCE* (City or Town)	PROVIDENCE (County)	RHODE ISLAND (State)
GENERAL STATISTICS		
Population of Providence (1960 Federal Census)		207,498
Estimated population supplied in suburbs		169,988
Total population supplied		377,486
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	82.4% by gravity; 17.6% by pumping	

STATISTICS OF CONSUMPTION OF WATER

1. Estimated population supplied	377,486
2. Total raw water influent for the year, gallons	18,851,452,000
3. Average daily raw water influent, gallons	51,648,000
4. Raw water consumption per capita, gallons daily	136.8
5. Total consumption for the year, gallons	**16,687,539,000
6. Total registration on customers' meters, gallons	15,693,117,000
7. Percentage of consumption accounted for on customers' meters	94.04%
8. Average daily consumption, gallons	45,719,285
9. Per capita consumption, gallons daily	121.1
10. Gallons per day to each tap	746
11. Cost of supplying water, per million gallons, based on operating and maintenance expense	\$82.46
12. Cost of supplying water, per million gallons, based on operating and maintenance expense plus fixed charges	\$136.24

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 Sodium Silicofluoride
5. Total water filtered during year, gallons	†16,920,368,000
6. Average quantity filtered per day, gallons	46,357,000
7. Total filtered water delivered to the distribution system during the year, gallons	†16,807,472,000

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

**Does not include 119,663,000 gallons used in filling, testing, and disinfecting the new Aqueduct Reservoir.

†Includes 119,663,000 gallons used for operations at the new Aqueduct Reservoir.

TABLE 55—Continued
SUMMARY OF STATISTICS
PROVIDENCE WATER SUPPLY BOARD
FOR THE YEAR ENDED SEPTEMBER 30, 1962

STATISTICS RELATING TO DISTRIBUTING SYSTEM MAINS†

1. Kind of pipe	Asbestos-Cement, Cast Iron, Steel and Concrete
2. Sizes	From 6 to 66 inches
3. Installed	65,685.02 feet
4. Removed	13,719.59 feet
5. Net increase	51,965.43 feet
6. Total now in use	763.56 miles
7. Number of leaks per mile	0.06
8. Length of pipes less than 6 inches in diameter	0
9. Number of hydrants installed	209
10. Number removed	132
11. Net increase	77
12. Number of hydrants now in use	4,499
13. Number of stop gates installed	198
14. Number removed	56
15. Net increase	142
16. Number of stop gates now in use	10,598
17. Number of stop gates smaller than 6 inches	0
18. Range of pressure on mains	14 to 95 pounds

HIGH PRESSURE FIRE SERVICE

Kind of pipe	Cast Iron
Sizes	6, 8, 12, 16 and 24 inches
Installed	0 feet
Removed	0 feet
Net increase	0 feet
Total now in use	12.87 miles
Number of hydrants installed	2
Number removed	2
Net increase	0
Number of hydrants now in use	161
Number of stop gates installed	0
Number removed	0
Net increase	0
Number of stop gates now in use	130
Number of blow-offs	0
Range of pressure on mains	94 to 130 pounds

SERVICES

19. Kind of pipe	Lead, Copper and Cast Iron
20. Size	½ inch to 30 inches
21. Number of service taps installed	970
22. Number removed	406
23. Net increase	564
24. Number of services now in use	61,281
25. Number of meters installed	1,925
26. Number removed or condemned	1,846
27. Net increase	79
28. Number of meters now in use	60,661
29. Percentage of services metered	99.9

†Not including high pressure fire service.