

Philadelphia, January 27, 1941.

BUREAU OF WATER REPORT OF PROCEEDINGS FOR
THE YEAR 1940.

The volume of water furnished daily from the filters for use throughout the City averaged 322 million gallons which, reduced to a per capita consumption, amounts to 166 gallons per day.

The bacteriological character of the water was in accord with the standards as set up by the United States Treasury Department. The integrity of the supply is indicated by the low typhoid fever death rate of 0.6 per 100,000 inhabitants. The fatalities from this disease numbered twelve (12) for the year, of which one (1) was non-resident of the City but was within its limits at the time of death.

In addition to the personnel of the Bureau there was engaged throughout the work on Federal projects an average of 1100 men, the activities of whom were of substantial value to the operation of the Water Works.

Combined with the plants of the Water Works, and operated by the Bureau of Water, are the Northeast Sewage Disposal Works, the Frankford Grit Chamber, the Southwest Sewage Pumping Station, the Mingo Creek and Southeast Stations, the two latter serving to prevent overflow of lowland ditches in their respective areas.

To further the preparation of plans for the rehabilitation of the Water Works, there was assigned by City Council a sum of \$250,000. A technical group was engaged and space for their activities was secured at the Chestnut Street Municipal Pier. The Department of Wharves, Docks & Ferries generously contributed offices to accommodate the force and at the end of the year seventy-two (72) employees were at work on studies, plans and estimates in order to further construction during the following year. To determine sub-surface soil characteristics boring contracts were negotiated and from definite notes reliable information guided for design of pump and filter structures.

Throughout West Philadelphia a water waste survey was conducted and a substantial reduction in water main losses was effected. Numerous leaks on service pipes were corrected and under registering meters were detected and restored to normal registration. The total leakage corrected during the course of survey exceeded two (2) million gallons daily and the value of such work was definitely demonstrated.

Concurrently with the water waste survey was conducted a valve repair project. Much of this distribution equipment was restored to functional ability and the housing cleared of debris whereby access to gate valves was acquired.

The installation of equipment at the Lower Roxborough Filter Plant by the Ozone Processing Company continued and experimental work early in the coming year is anticipated.

The low temperature period at the beginning of the year imposed upon the Distribution System a very heavy burden of repairs due to an abnormal number of broken water mains. This load approached an epidemic stage and upon various days four to five offending mains were listed for immediate attention. The absence of service and costly damages was prevented only through the strenuous and loyal efforts of the emergency crews set up in the Distribution organization.

To establish a uniform system of records covering the characteristics of water before and after delivery from the filters and as contributed to the domestic and industrial consumer, there was selected by the Director of Health of the State a committee to inaugurate an identical policy for sampling and recording water characteristics. This committee has functioned harmoniously and the routine has in no way added a burden to the Bureau of Water.

RIVER PATROL

The cities and towns on the Schuylkill River between Philadelphia and Reading have observed the request for and in most localities followed with construction

of sewage disposal works thereby reducing polluting contribution to the river.

The industrial plants where no definite or complete elimination of harmful waste is practiced have given every effort towards a minimum offence with plant effluents.

The contact which is routine between the technical men of this Bureau and the representatives of the industry group is harmonious and productive.

INTAKES

The silting along the banks of the Schuylkill River encroaching upon the Shawmont and Belmont intakes remains a seasonal visitation. During the past summer a substantial amount of dredging was accomplished in front of the Belmont Pumping Station and evidence of a better character in river water draft was an immediate result.

The silting of approach from the Delaware River continues and the sedimentation basin has lost much of its value due to the accumulation of mud thereby reducing the cross-section for sediment retention.

PUMPING STATIONS

Torresdale

Normal service was rendered with but one period of burden imposed due to ice formation on screens thereby blocking the inflowing water. Over-night crews of laborers were engaged to provide access of flow and maintain suction lift to workable limits.

Lardner's Point

Major repairs were demanded because of failures of four (4) vertical triple engines, the most serious being a broken crank shaft, the replacement of which will be made during the coming year.

Return to service of the turbo-centrifugal unit was accomplished and much concern was created by the weakness of turbo-generators the use of which is applied to and essential for coal and ash handling and all electric auxiliaries.

The boiler plant requires constant effort to maintain service due to arch trouble, baffle replacement and shortcomings of super-heaters.

Belmont

New impellers were installed in the two 60 M.G.D. units thereby restoring towards normal efficiency suffered by operating with wheels which were vitally damaged.

Queen Lane

A new roof on boiler house was placed; repairs made to screens at intake and a new cast iron water main laid for hydraulic delivery of coal.

Service from one large pump has been lost due to need of over-hauling. Repair parts are under order, their delivery being delayed by manufacturer's load of priority requests.

Boiler tubes have failed in quantities and the enforced strain throughout the line has given grave concern.

Shawmont

Early in the year the motors on both the pumps failed exemplifying the weakness of no reserve when major repairs are required on one unit. Age of electrical equipment made necessary abnormal attention and points to the need of replacement.

High Service stations at Roxboro, Chestnut Hill, Oak Lane and Torresdale have functioned despite overload upon occasion and the weakness of some obsolete and inappropriate electrical equipment.

High Pressure Fire Stations have given the service demanded regardless of the fatigue of gas engines at Delaware Avenue and Race Street. This station should be equipped with new units under electric power.

The two stations responded to eight (8) runs of 34 hours 44 minutes duration and six runs of 32 hours 50 minutes duration respectively at Delaware Avenue and Race Street and at 6th Street and Lehigh Avenue.

Mingo Creek Station with efficient performance has reduced the drainage problems at the Philadelphia Airport and maintained the low ditch levels throughout the Eastwick section. The Southeast Station similarly has functioned on lowlands of adjacent areas.

Normal and satisfactory service of the Southwest Sewage Pumping Station has been contributed throughout the year.

Northeast Sewage Works

Pump control and transformer equipment at the outfall pier has occupied the attention of Bureau for insurance against high river water and reliability of service on treatment tanks.

The Frankford Grit Chamber has been equipped with various protective devices to conform with regulation of State Department.

FILTERS

The service of water in volume and the potability of delivery from all plants was satisfactory.

Torresdale

The valuable assistance contributed through Federal agencies has been reflected in the successful operation of plant.

The repairs and reconditioning has extended to a group of sixty-eight (68) preliminary units being completed and helpful work on slow sand beds has been contributed by the Works Progress Administration. The field for additional activity is extensive at this plant and considerable repair work was accomplished on brick buildings, metal doors, granolithic pavements and court curbing, all on the area occupied by the slow sand filters.

Queen Lane

The rehabilitation of both north and south sides of plant involving floors of slow sand units and roof of the underlying basin has been completed. The waterproof membrane on slow sand filter floors has demonstrated the advisability of the adopted construction. All of these improvements have been

made possible by a Works Progress Administration Project.

Belmont

Work on construction of a second sand filter bed was completed and its performance will be under observation for determining subsequent design.

Broken arches on two final filters received attention and cracked floors were repaired; attendant work on units involved the removal and replacement of sand gravel and underdrains.

Participation on masonry repairs to courts and buildings by Works Progress Administration resulted in general plant improvement.

Upper and Lower Roxborough

Repair work on masonry defects have been made on buildings and drives all under the efforts of Works Progress Administration.

The creation of a second story was effected in the administration building at the Upper Plant. On this new floor will be the offices of the Superintendent and a State Sanitary Board Laboratory.

RESERVOIRS

Belmont

The accumulated silt was removed from the two reservoirs and coagulation basins.

Upper and Lower Roxborough

Construction of a new driveway with masonry side walls was completed at the Upper Plant and creditable work was accomplished at the Lower Plant on a retaining wall surrounding the basin.

DISTRIBUTION

An unusual number of water main breaks during the early months built the total for year to 476 and 18 respectively on Distribution and High Pressure Systems. To restore and maintain domestic and industrial service with a minimum number of protests reflects creditably on the activity and ability of limited maintenance force.

The periods of high temperatures through the summer season marked a reduced abuse of the City fire hydrants. Fewer authorized hydrant showers were operated but in spite of the favor granted for attachments, there were numerous violations by unauthorized persons on opening hydrants which ran freely with no control. Such abuse definitely affects the working parts of this valuable equipment. Worthy efforts by the Department of Public Safety to stop this practice were helpful but offences persisted thereby reducing neighborhood pressures for water service and contributing towards a serious waste of water and damage to hydrants made evident when resorted to in the event of fire. Replacement of over 743 new hydrants was accomplished during the year.

Substantial footage of service mains was constructed by the operating builders.

Service studies for Federal Housing Authority have been made and advice offered to guide such agencies for a water supply.

Further extension of water main in Island Road was accomplished in the direction of Fort Mifflin.

Service Systems

Mains in miles	-	2,520
Valves in service	-	50,868
Fire hydrants in service	-	20,494

High Pressure Fire System

Mains in miles	-	63
Valves in service	-	1,872
Fire hydrants in service	-	1,070

Broken mains were respectively 476 and 18 on distribution service and fire systems.

Continued work under Works Progress Administration is producing valuable information for the recording of pipe, valve and hydrant location upon standard sheets for office reference and distribution studies.

METERS

Installations - total number	-	229,393
Per cent. of City services metered	-	48

MAINTENANCE ACTIVITIES

Meters - repaired in shop	-	14,073
" - " on premises	-	4,202

STATEMENT OF COMPLAINTS (JOBS ON HAND)

January 1st, 1940	-	18,929
December 31st, 1940	-	22,556
Received during year	-	24,630
Repairs accomplished	-	18,275

REVENUE

Water Rents - Flat Rates:

Current	-	\$2,461,987.31	
Delinquent	-	<u>332,650.28</u>	\$2,794,637.59

Meter Rates:

Current	-	\$2,687,743.24	
Delinquent	-	<u>314,582.62</u>	4,002,325.86

Water pipe Searches	-	3,382.75	
" " Frontage	-	22,984.13	
Specials	-	5,246.52	
New Services	-	13,911.00	
Meter Repairs	-	56,857.49	
Miscellaneous	-	<u>27,482.92</u>	129,864.81
			<u>\$6,926,828.26</u>

FINANCIAL REPORT

<u>OPERATION</u>	<u>SALARY & WAGES</u>	<u>MATERIAL & EQUIP- MENT CONSUMED</u>	<u>TOTAL</u>
Administration	\$ 74,964.19	\$ 4,825.90	\$ 79,790.09
Pumping	325,435.75	1,032,660.89	1,358,096.64
Filtration	200,056.76	271,230.21	471,286.97
Distribution	274,960.48	141,562.02	416,522.50
High Pressure Fire	64,176.60	7,581.78	71,758.38
Sewage Disposal Plants	81,322.30	33,088.94	114,411.24
Miscellaneous	556.13		556.13
Other Bureaus	<u>783.13</u>	<u>347.30</u>	<u>1,130.43</u>
Totals.....	\$1,022,255.34	\$ 1,491,297.04	\$2,513,552.38

	<u>Salary & Wages</u>	<u>Material & Equip- ment Consumed</u>	<u>Total</u>
Bro't Forward	\$1,022,255.34	\$ 1,491,297.04	\$ 2,513,552.38
Construction Work in Progress	1,193.98	11,923.05	13,117.03
Additions & Better- ments	19,431.34	50,702.61	70,133.95
Rehabilitation of Water Supply	<u>73,042.06</u>	<u>26,677.81</u>	<u>99,719.87</u>
Grand Totals	<u>\$1,115,922.72</u>	<u>\$ 1,580,600.51</u>	<u>\$ 2,696,523.23</u>

Note -- Operation Costs include \$476,602.76 Electric current for Power & Light furnished by Philadelphia Electric Company.

Note -- Operations Costs include \$ 59,671.36 Labor furnished by Bureau of Mechanical Equipment.

ACTIVITIES OF THE WORKS PROGRESS ADMINISTRATION

<u>Queen Lane Filters & Pumps</u> --Restoring structure, waterproofing floors, restoring sand and gravel	--	men engaged	255
<u>Belmont Filters</u> --Restoring faulty roofs, removing and replacing sand and gravel, reconstruction of beds, painting buildings & removing silt from reservoirs	--	men engaged	208
<u>Roxborough Filters</u> --Cleaning beds; repairing masonry courts; building brick driveway	--	men engaged	51
<u>Torresdale Filters and Station</u> --Cleaning filters; rebuilding and re-vamping units; laying masonry slopes on sedimentation basin; landscaping grounds	--	men engaged	340
<u>Water Main Survey</u>	--	men engaged	69
<u>Water Waste West Philadelphia</u>	--	men engaged	72
<u>Valve and valve box repairs</u>	--	men engaged	147
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The work this force has produced is and will be of essential value to the Bureau.

Respectfully submitted,

S. M. Van Loan

S. M. VAN LOAN
Chief, Bureau of Water.

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