INTERSTATE SANITATION COMMISSION

1970

NEW YORK NEW JERSEY CONNECTICUT

1 9 7 0

R e p o r t

of the

INTERSTATE SANITATION COMMISSION

on the
Water Pollution Control Activities
and the
Interstate Air Pollution Program

INTERSTATE SANITATION COMMISSION

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INTERSTATE SANITATION COMMISSION

10 COLUMBUS CIRCLE • NEW YORK, N. Y. 10019

AREA CODE 212-582-0380

January 22, 1971

To His Excellency, Nelson A. Rockefeller
His Excellency, William T. Cahill
His Excellency, Thomas J. Meskill
and the Legislatures of the States of New York, New Jersey and Connecticut

Sirs:

The Interstate Sanitation Commission respectfully submits its report for the year 1970.

The members of the Commission trust that we will receive the continued active interest and support of the Governors and the members of the Legislatures to assure the progress of the important programs in water and air pollution abatement for the improvement of our environment.

Respectfully submitted,

Natale Colosi
For the State of New York — Chairman

J. Louis Radel
For the State of Connecticut — Vice Chairman

Louis J. Fontenelli
For the State of New Jersey — Vice Chairman

C O N T E N T S

I L L U S T R A T I O N S

I. SUMMARY OF ACTIVITIES

The Interstate Sanitation Commission was formed in 1936 by the States of New York and New Jersey. Connecticut joined the Commission in 1941. The Tri-State Compact, under which the Commission is organized, provides for the abatement of existing water pollution and control of future water pollution in the tidal waters of the metropolitan New York area. In 1962, air pollution was added to the scope of the Commission's activities.

This report, which is prepared each year, provides a record of the water and air pollution activities of the Interstate Sanitation Commission and the work and planning on water pollution control projects within the Interstate Sanitation District. The Annual Report is submitted to the Governors and Legislatures of the States of New York, New Jersey and Connecticut.

WATER POLLUTION

During 1970, a large amount of planning and construction were initiated, providing for a minimum of 80 percent biochemical oxygen demand removal to wastewater effluents discharging into District waters. It is estimated that more than 2.2 billion dollars will be spent in the District within the next five years for this.

During the year 1970, the Interstate Sanitation Commission expanded its ability to conduct additional types of analyses with the addition of new instruments to its laboratory. This has enabled the Commission to act as a regional laboratory for analyses for State and Federal agencies. The Commission also continued its training program for treatment plant operators.

Included in this report is a detailed study of the Upper East River and Western Long Island Sound conducted this past summer by the Commission as a follow-up to its 1959 report covering approx-

imately the same area. The report shows an increase of dissolved oxygen as well as an increase in coliform density compared to the previous report, and for the first time contains background information on nutrients and other parameters for future reference.

AIR POLLUTION

On April 16, 1970, the Interstate Sanitation Commission was designated by the States of New York, New Jersey and Connecticut as the official planning and coordinating agency for the Federally-designated New Jersey-New York-Connecticut Air Quality Control Region, thus expanding the responsibilities and programs of the Commission in air pollution. The Commission continues to coordinate the Regional Air Pollution Warning System in the New Jersey-New York-Connecticut area. In this respect, the Commission sponsored a workshop of government officials to update the present warning system and tighten up its standards and consider the use of additional parameters. The Commission's continuous wind speed and direction recording instrument located on the Arthur Kill has proved of such use that two additional ones have been ordered for installation in other areas.

II. W A T E R P O L L U T I O N

New York

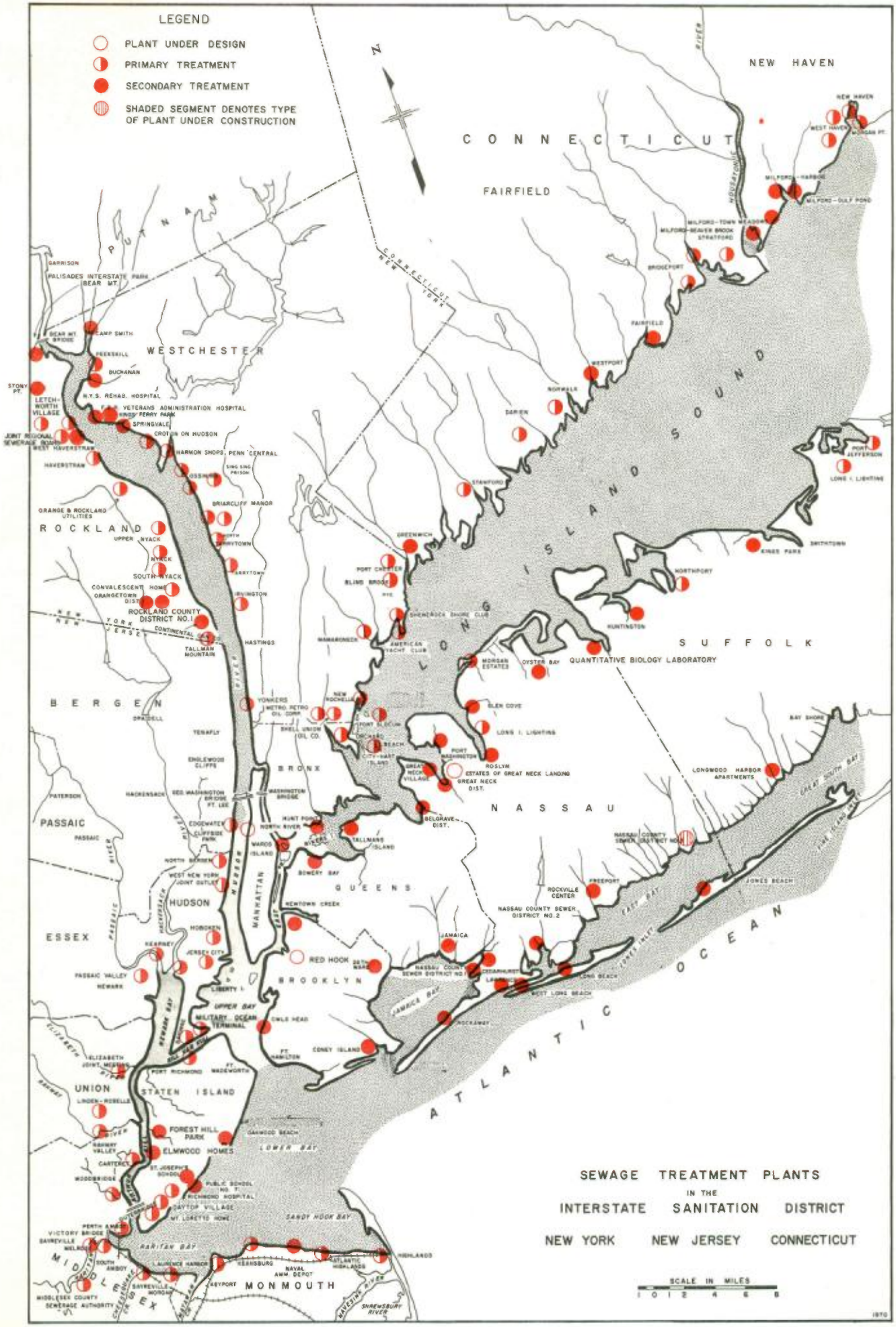
New Jersey & Connecticut

GENERAL

During the calendar year of 1970, water pollution control projects associated with 94 treatment plants were completed, were under construction or were in the planning stage within the Interstate Sanitation District. Funds designated for this work amount to more than $2,290,007,000. This figure was derived from the following estimates: $16,807,000 for completed projects; $222,300,000 for projects under construction; $2,050,900,000 for future projects. The bulk of these projects are the result of requirements that all wastes entering District Waters be given secondary treatment. Expansion of sewer service areas also calls for considerable expenditures.

Information pertaining to water pollution control projects in this report is that obtained by the Interstate Sanitation Commission from responsible officials in the respective state or local government agencies, sewerage authorities or consulting engineering firms.

The map of the Interstate Sanitation District on the following page indicates all sewage treatment plants discharging to District Waters. These are sampled regularly by the Commission. Appendix A lists more detailed information on each plant.


LEGEND
PLANT UNDER DESIGN
PRIMARY TREATMENT
SECONDARY TREATMENT
SHADED SEGMENT DENOTES TYPE OF PLANT UNDER CONSTRUCTION
N
CONNECTICUT
NEW HAVEN
FAIRFIELD
PUTNAM
WESTCHESTER
ROCKLAND
BERGEN
PASSAIC
ESSEX
HUDSON
UNION
MIDDLESEX
MONMOUTH
STATEN ISLAND
BRONX
MANHATTAN
QUEENS
BROOKLYN
NASSAU
SUFFOLK
LONG ISLAND SOUND
ATLANTIC OCEAN
HUDSON RIVER
HARLEM RIVER
EAST RIVER
NEWARK BAY
RARITAN BAY
SANDY HOOK BAY
LOWER BAY
JAMAICA BAY
GREAT SOUTH BAY
GARRISON
PALISADES INTERSTATE PARK
BEAR MT.
CAMP SMITH
PEEKSKILL
BUCHANAN
STONY PT.
LETCHWORTH VILLAGE
N.Y.S. REHAB. HOSPITAL
VETERANS ADMINISTRATION HOSPITAL
KINGS FERRY PARK
SPRINGVALE
CROTON ON HUDSON
HARMON SHOPS, PENN CENTRAL
SING SING PRISON
OSSINING
BRIARCLIFF MANOR
ORANGE & ROCKLAND UTILITIES
UPPER NYACK
NYACK
SOUTH NYACK
CONVALESCENT HOME
ORANGETOWN DIST.
ROCKLAND COUNTY DISTRICT NO. 1
TALLMAN MOUNTAIN
HASTINGS
YONKERS
METRO. PETRO OIL CORP.
SHELL UNION OIL CO.
NEW ROCHELLE
PORT CHESTER
BLIND BROOK
GREENWICH
STAMFORD
DARIEN
NORWALK
WESTPORT
FAIRFIELD
BRIDGEPORT
MILFORD-BEAVER BROOK STRATFORD
MILFORD-TOWN MEADOW
MILFORD-HARBOR
MILFORD-GULF POND
NEW HAVEN
WEST HAVEN
MORGAN PT.
HOUSATONIC RIVER
CONNECTICUT TOWNS
PORT JEFFERSON
LONG I. LIGHTING
KINGS PARK
SMITHTOWN
NORTHPORT
HUNTINGTON
SHERWOOD SHORE CLUB
MAMARONECK
AMERICAN YACHT CLUB
MORGAN ESTATES
OYSTER BAY
QUANTITATIVE BIOLOGY LABORATORY
GLEN COVE
LONG I. LIGHTING
PORT WASHINGTON
ROSLYN
ESTATES OF GREAT NECK LANDING
GREAT NECK DIST.
BELGRAVE DIST.
BAY SHORE
LONGWOOD HARBOR APARTMENTS
NASSAU COUNTY SEWER DISTRICT NO. 1
FREEPORT
ROCKVILLE CENTER
NASSAU COUNTY SEWER DISTRICT NO. 2
JONES BEACH
FAR ROCKAWAY
LONG BEACH
WEST LONG BEACH
JAMAICA
CEDARHURST
LEVITTOWN
ROCKAWAY
CONEY ISLAND
FT. HAMILTON
RED HOOK
NEWTOWN CREEK
BOWERY BAY
WARDS ISLAND
TALLMANS ISLAND
HUNT POINT
NORTH RIVER
WASHINGTON BRIDGE
RED. WASHINGTON BRIDGE FT. LEE
EDGEWATER
CLIFFSIDE PARK
NORTH BERGEN
WEST NEW YORK JOINT OUTLET
HOBOKEN
JERSEY CITY
KEARNEY
PASSAIC VALLEY
NEWARK
LIBERTY I.
UPPER BAY
MILITARY OCEAN TERMINAL
GWLS HEAD
ELIZABETH JOINT MEETING
PORT RICHMOND
FT. WADSWORTH
LINDEN-ROSELLE
FOREST HILL PARK
ELMWOOD HOMES
CARTERET
WOODBRIDGE
ST. JOSEPH'S SCHOOL
PUBLIC SCHOOL NO. 7
RICHMOND HOSPITAL
DAYTOP VILLAGE
MT. LORETTO HOME
PERTH AMBOY
VICTORY BRIDGE
SAYREVILLE
SOUTH AMBOY
LAURENCE HARBOR
KEANSBURG
NAVAL AMM. DEPOT
ATLANTIC HIGHLANDS
HIGHLANDS
KEYPORT
SAYREVILLE-MORGAN
MIDDLESEX COUNTY SEWERAGE AUTHORITY
SHREWSBURY RIVER
OAKWOOD BEACH
SEWAGE TREATMENT PLANTS
IN THE
INTERSTATE SANITATION DISTRICT
NEW YORK NEW JERSEY CONNECTICUT
SCALE IN MILES
0 1 2 4 6 8
1970

WATER POLLUTION CONTROL PROJECTS

Atlantic Highlands, N.J. (Monmouth County)

Future Project

A joint treatment plant to serve the Boroughs of Atlantic Highlands and Highlands is expected to be completed in the Spring of 1972. The existing Atlantic Highlands plant will be converted to a pump station.

Belgrave Sewer District, N.Y. (Nassau County)

Future Projects

Construction is expected to begin in May 1971 on a new primary digester and hydro grit washer.

A survey is now being conducted for a proposed expansion of the present plant to 4 million gallons per day under the Nassau County Sewer District #4 report for the north shore of the County.

Blind Brook, Rye, N.Y. (Westchester County)

Future Project

An engineering report pertaining to upgrading this plant to secondary treatment was completed on January 1, 1970. The work will cost about $6,000,000.

Sludge from the Blind Brook Plant will undergo thermal oxidation at the secondary plant to be constructed at Port Chester.

Bowery Bay, N.Y. (Queens County)

Completed Project

Construction of a pumping station, force main and interceptor to convey 1.1 million gallons of sewage per day from Rikers Island to the Bowery Bay Plant is completed. The work was finished this summer at a cost of $900,000.

Future Project

Consultants have prepared a report to expand and upgrade the Bowery Bay Plant. Its capacity will increase to 150 million gallons per day, a 60 million gallons per day increase and it will be converted to step aeration with minimum removals of 90 percent of biochemical oxygen demand and suspended solids.

This report includes improvements to the existing plant and is presently awaiting state approval. Cost of the entire project is estimated at $49,300,000.

An application for the above work was filed with the New York State Department of Environmental Conservation and has subsequently received an offer from the Federal Water Quality Administration and New York State for a 60 percent reimbursement of eligible costs.

Briarcliff Manor, N.Y. (Westchester County)

Future Project

The sewage presently being treated by septic tanks located at River Road and Scarborough Dock will be diverted by the installation of pump stations to the Westchester County Plant to be built in Ossining. An engineering report is now being prepared.

Bridgeport, East Side Plant, Conn. (Fairfield County)

Project Under Construction

Construction is now in progress for upgrading this treatment plant from primary to secondary treatment. Design of the new activated sludge facilities call for a 95 percent removal of biochemical oxygen demand and suspended solids.

Future Projects

Additional plans have been completed for the expansion of facilities to a design flow of 12

Future Project

The Bureau of Water Pollution Control submitted an application for funding to New York State and the Federal Government and is presently awaiting approval.

The consultant's engineering report deals with the basis of design for converting this to a step aeration plant with a 110 million gallons per day capacity.

Total cost of the plant upgrading and pumping station is estimated at $40,000,000.

Continental Can Co., Piermont, N.Y. (Rockland County)

Completed Project

Construction work which began in July 1969 has been completed at a cost of about $1,000,000. Final testing and minor adjustments need only to be made.

Secondary treatment facilities were constructed to handle this plant's 2.5 million gallons per day of white water waste. The existing 64-foot diameter Dorr Clarifier remains in operation and chemical coagulation has been provided. New facilities include two 6.25 million gallons aeration basins and four sludge lagoons.

Croton-on-Hudson, N.Y. (Westchester County)

Future Project

The 750,000 gallons per day Croton plant will be converted to a pump station upon construction of a new Westchester County Plant at Ossining.

Edgewater, N.J. (Bergen County)

Future Project

An engineering report has been prepared. This report is concerned with upgrading of the

present facility to activated sludge treatment with 90 percent biochemical oxygen demand and total suspended solids reduction.

An alternate plan considers conversion to a pump station to discharge to the Bergen County Sewerage Authority at Little Ferry.

Elizabeth Joint Meeting, N.J. (Union County)

Future Project

An engineering report has been completed recommending upgrading the plant to activated sludge treatment. The plant will be designed for 75 million gallons per day and 90 percent biochemical oxygen demand and total suspended solids reduction. Estimated costs for the project are $32,000,000.

The plans have been submitted and approved by the New Jersey State Department of Environmental Protection. Construction is scheduled to begin in July 1971. An aeration tank, final settling tank, chlorine contact tank and additional sludge storage will be built.

Estates of Great Neck Landing, Babylon, N.Y. (Suffolk County)

Future Project

Present plans call for the construction of a pump station and a tie-in to the county sewer system for this development of 230 homes on the South Shore.

Fairfield, Conn. (Fairfield County)

Project Under Construction

Pumping stations and force mains are to be put in service before January 1, 1970 at a cost of $200,000.

Future Project

The existing plant will increase its design capacity to 8 million gallons per day with acti-

vated sludge treatment. New units to be added include: two primary tanks, two new aeration tanks, and a digester. The existing aerators will be converted to mechanical types. Cost for the second phase of construction is $2,200,000.

Fort Tilden, N.Y. (Queens County)

Completed Project

This primary treatment plant has been taken out of service and its flow diverted to the Rockaway Treatment Plant.

Freeport, N.Y. (Nassau County)

Future Project

Plans to upgrade to secondary treatment with advanced waste water treatment have received New York State approval and await Federal consideration.

A pilot plant is to be installed in 1971 to study advanced waste treatment.

The engineering report calls for a design of 95 percent biochemical oxygen demand and total suspended solids reduction. New primary settling tanks and de-nitrification tanks will be added. De-nitrification by means of activated sludge treatment is expected to remove 80 percent nitrogen. Cost for the total project is estimated at $15,015,000.

General Aniline and Film Corp., Linden, N.J. (Union County)

Project Under Construction

GAF Corporation has prepared a preliminary engineering report for treatment of its waste waters. This has been submitted to the state for review and approval. Work on the final design is now underway and will incorporate neutralization and activated sludge treatment for a peak flow of 20 million gallons per day.

Some construction work was begun on October 1, 1969 with completion scheduled for April, 1973. Total cost of the project is estimated at $6,000,000.

Glen Cove-Morgan Island Plant, N.Y. (Nassau County)

Future Project

Plans have been completed for conversion of the Morgan Island Treatment Plant to a pumping station. Both state and federal financing have been approved for the job. Work will begin when the Morris Avenue Plant has been expanded to handle the additional load.

Glen Cove-Morris Avenue Plant, N.Y. (Nassau County)

Future Project

Engineering plans for the expansion and upgrading of this plant from secondary to tertiary treatment have been completed. Additional land is being acquired for this expansion.

The expanded plant will accept waste being pumped from the converted Glen Cove-Morgan Island Plant.

Great Neck Sewer District, N.Y. (Nassau County)

Future Project

An expansion of plant capacity to 8 million gallons per day is expected to start in the Summer of 1971. The project should cost an estimated $4,300,000.

Units to be built are additional primary and secondary settling tanks, a sludge thickening tank, a sludge incineration system and two additional trickling filters.

Haverstraw, N.Y. (Rockland County)

Future Project

Engineering plans have been completed to upgrade this existing one million gallons per day primary treatment plant.

Final plans call for the addition of the following new units: two high-rate trickling filters, two secondary settling basins, a chlorine contact tank, renovation of existing digestors and the addition of a centrifuge. The completed plant should give an 85 percent biochemical oxygen demand removal and 85 percent suspended solids reduction.

Total project cost is estimated at $1,200,000.

Hess Oil Co., Port Reading, N.J. (Middlesex County)

Completed Project

Hess Oil's separator facilities have been upgraded. Provisions were made for the addition of floculant chemicals and air flotation. This system will be fully operational in early 1971 and will handle the plant's total waste flow.

Highlands, N.J. (Monmouth County)

Future Projects

A joint treatment plant is to be built for the Borough of Highlands and the Borough of Atlantic Highlands. The target date for completion of the 2 million gallons per day plant is spring 1972. The plant is being designed to meet state requirements for secondary treatment.

The existing Atlantic Highlands Treatment Plant will be converted to a pump station at a cost of $157,000. The total cost of the joint treatment plant is estimated at $2,000,000.

Hoboken, N.J. (Hudson County)

Future Project

Plans are being considered to convert this plant into a pump station to pump treated primary effluent to a Hudson County Regional Treatment Plant.

Hudson County, N.J. (Hudson County)

Future Projects

A regional sewerage facilities study for Hudson County has been completed. Three general plants for regionalization of sewerage facilities on a county wide basis have been proposed.

Alternate I involves the establishment of four collection regions and four discharge points. The main advantage of this plan is that construction could commence immediately and serve North Bergen where the oldest plants are located.

Alternate II calls for three independent, decentralized regions.

Alternate III differs from the others mainly in concentrating all effluent discharge at one point in Upper New York Harbor thereby eliminating all discharge to the Hackensack River, Newark Bay and the Kill Van Kull. All secondary treatment would be concentrated at Jersey City East. This plant will receive flows for 105 million gallons per day at this time and 165 million gallons per day in twenty-five years. The study recommended construction of a 220 million gallons per day secondary treatment facility with reserved area for a 50 percent increase and for tertiary treatment when required.

Humble Oil and Refining Co., Bayonne, N.J. (Hudson County)

Completed Projects

Humble has installed an air flotation unit

to handle a flow of 2,500 gallons per minute from its wax plant.

The influent is lifted by a screw pump following screening to an API separator. After separator treatment the waste water passes to the air flotation tank.

Effluent is supersaturated with air and recirculated to the head of this tank at a rate of 1,250 gallons per minute. Wax material is skimmed from the surface of the flotation tank. The treated effluent is discharged to the Kill Van Kull.

A flash mix and floculating basin have been provided in case chemical treatment is required at a later time.

A pilot plant study for the removal of oil from waste waters by sand filtration was completed by Humble this year. Plans are underway to utilize this type of treatment in another area of the plant site.

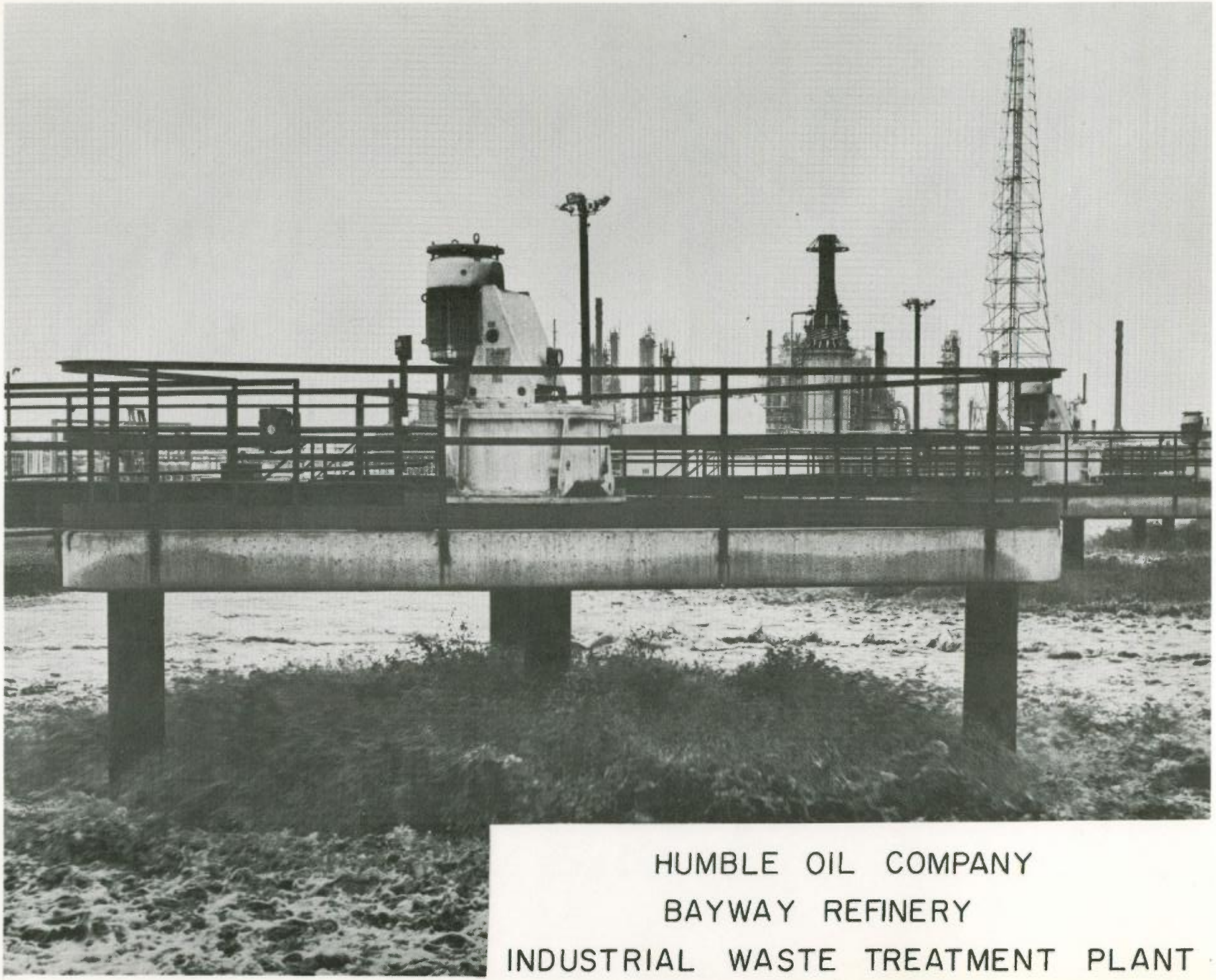
Humble Oil and Refining Co., Linden, N.J.
(Union County)

Completed Projects

The Bayway Refinery has completed construction of and put into operation industrial treatment facilities for its oily waste water flow. Treatment units were designed to handle a flow of 15 million gallons per day at a cost of $6,000,000.

Waste waters from the plant gravity flow to two API separators. The discharge from these is pumped into two aeration basins with a detention time of 18 hours. Both basins are equipped with surface aerators.

The final treatment units are circular clarifiers which discharge to Morses Creek. Sludge from these is returned to the aeration basins with no wasting at the present time.



HUMBLE OIL COMPANY

BAYWAY REFINERY

INDUSTRIAL WASTE TREATMENT PLANT

An equalization and neutralization system for a .5 million gallons per day flow is expected to go into operation in the spring of 1971.

Hunts Point, N.Y. (Bronx County)

Completed Project

One of the plant's sedimentation tanks has been provided with leak proof expansion joints and having proved successful the balance of the tanks will be incorporated in the plant's upgrading contract.

Future Projects

An engineering report and an application for aid on the order of 60 percent of eligible costs has been approved by the State and Federal Governments.

This report deals with increasing the design flow to 200 million gallons per day, providing step aeration with minimum removals of 90 percent of biochemical oxygen demand and suspended solids, improving existing facilities, and adding the Hart-City Island and Co-op City flows to Hunts Point. Overall project cost is estimated at $43,500,000 with $35,000,000 of this allocated to construction work in the expanding and upgrading phase.

Bids for the first phase of this project which includes work on the preliminary and final settling tanks have been accepted. Construction began in December, 1970.

The entire plant should be operational by 1974.

Irvington, N.Y. (Westchester County)

Future Project

This existing 1.0 million gallons per day treatment plant is to have its flow diverted to the Yonkers Joint Meeting Plant when its expansion is completed.

Jamaica, N.Y. (Queens County)

Future Project

A consultant's report has been approved by New York State for upgrading the units in this plant to provide an overall biochemical oxygen demand removal of at least 90 percent by the step aeration process. The total cost of this work to begin in the third quarter of 1971 is about $23,800,000.

New York City has had an application approved for 60% funding of this work by the State and Federal Governments.

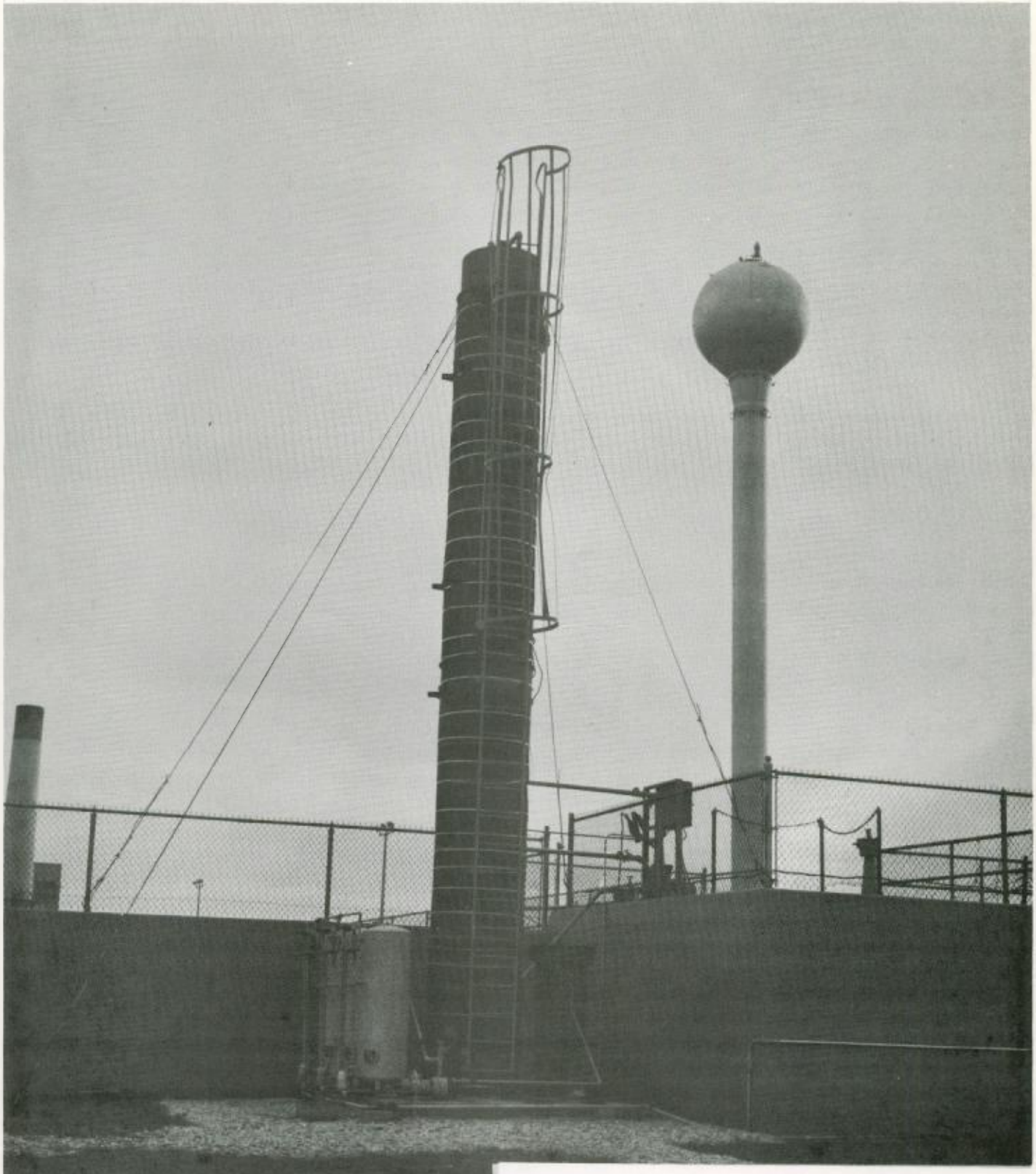
Jersey City - East Side and West Side, N.J. (Hudson County)

Future Projects

Under the plans for a regional Hudson County Sewerage Authority, Jersey City anticipates combining treatment facilities. Primary treatment effluent from the West Side Plant will be pumped to the East Side facility for secondary treatment. A pilot plant study is now under way at the West Side Plant. Target date for construction is May, 1971.

The West Side Plant is being designed for an expanded 70 million gallons per day flow. The East Side Plant is being designed for 110 million gallons per day and 85-90 percent biochemical oxygen demand reduction and 90 percent total suspended solids reduction. Sludge handling equipment and an incinerator are to be built at the East Side Plant.

A 72-inch force main will connect the two plants. Eight million Dollars is allocated for rehabilitation of both primary plants. Cost for the total project is estimated at $89,600,000.



JERSEY CITY – WEST
PILOT PLANT

MAYO, LYNCH & ASSOCIATES INC.
CONSULTING ENGINEERS

Joint Regional Sewerage Board, West Haverstraw, N.Y. (Rockland County)

Projects Under Construction

Construction began in August 1969 on a new 3.2 million gallons per day modified activated sludge treatment plant to be completed in spring of 1971 at an approximate cost of $3,000,000. The district served will include the Village of West Haverstraw, the Town of Haverstraw, Letchworth Village and the New York State Rehabilitation Hospital. Negotiations are also under way with Garnerville Holding Company.

The Town of Haverstraw is constructing a sewer system at an estimated cost of $1,500,000. This system will be tributary to the new plant under construction.

Kay-Fries Chemicals, Inc., West Haverstraw, N.Y. (Rockland County)

Future Project

Kay-Fries presently provides for neutralization of its .5 million gallons per day effluent to Minesceongo Creek.

An agreement was reached with New York State in March, 1970 that Kay-Fries would elect to treat its own wastes or divert them to a municipal system by March 1, 1971. The method decided on will be implemented in 1973.

Keansburg, N.J. (Monmouth County)

Future Project

Two feasibility studies were completed to determine the future of the treatment plant. One study recommended upgrading the existing facility for secondary treatment. The other study suggested that Keansburg join the regional treatment plant of the Bayshore Sewage Authority.

Keyport, N.J. (Monmouth County)

Future Projects

A new treatment plant to serve Keyport, Matawan Borough, a portion of Marlboro Township, and Matawan Township is to be built. The 3 million gallons per day plant is designed for 90 percent biochemical oxygen demand reduction and greater than 90 percent total suspended solids reduction. Cost is estimated at $3,000,000.

The present Keyport plant will be converted to a pump station with a force main to the new treatment facility. Conversion costs should be $175,000.

The new treatment plant will contain a comminutor, grit chamber, primary settling tank, first stage trickling filter, intermediate settling basin, second stage trickling filter, final settling basin and chlorine contact tank units.

Kings Ferry Park, Cortland, N.Y. (Westchester County)

Completed Project

A 50,000 gallons per day contact stabilization treatment plant was completed in 1970. This plant discharges to Green's Cove on the Hudson River and provides for an 85 percent biochemical oxygen demand and suspended solids removal.

Kings Park State Hospital, N.Y. (Suffolk County)

Future Project

Engineering plans are being completed for the proposed construction of additional septic waste facilities to be built on state property by the Town of Smithtown. The septic waste installation will be built next to the existing secondary treatment facilities of Kings Park State Hospital.

Proposed plans call for the installation of a 20,000 gallons holding tank, a new grit removal system, and a new vacuum filter at the plant.

Total project cost is expected to be approximately $175,000 and completion of the work is scheduled for late 1971.

Letchworth Village, N.Y. (Rockland County)

Future Project

This primary plant will divert its flow to the new West Haverstraw Treatment Plant when it is completed.

Linden-Roselle, N.J. (Union County)

Future Project

Federal funds have been approved for the upgrading of this facility to secondary treatment. Litigation is now in progress to acquire 4 additional acres to the plant property to provide space for this expansion.

Long Beach, N.Y. (Nassau County)

Future Project

An engineering report was completed recommending doubling the present plant capacity to 13 million gallons per day. The cost of this expansion of the trickling filter treatment is estimated at $2,571,000.

Units to be added are as follows: main sewage pumps, grit chamber, 2 primary settling tanks, 2 trickling filters, 2 secondary settling tanks, recirculation pumps and piping, sludge pump, sludge storage tank, and skimmers and weirs for existing settling tanks.

Long Island Lighting Company, Port Jefferson, N.Y. (Suffolk County)

Project Under Construction

Work is in progress to divert the Long Island Lighting flow to the Port Jefferson Treatment Plant.

Force mains have been put in and pumps are on order.

Madison Township Sewerage Authority - Laurence Harbor, N.J. (Middlesex County)

Project Under Construction

A pump station plus laterals is under construction in the Leone Park section of Madison Township at a cost of $600,000.

Future Project

Plans for upgrading the plant to secondary treatment have been submitted to the New Jersey Department of Environmental Protection.

The $1,000,000 project is designed for a flow of 1.5 million gallons per day with 95 percent biochemical oxygen demand and 90 percent total suspended solids reduction. Two aeration tanks and a final settling tank are to be added to the present primary treatment facilities. The present primary settling tanks will be equipped with grease skimmers. The upgraded plant will utilize modified activated sludge treatment.

Middlesex County Sewerage Authority, N.J. (Middlesex County)

Future Projects

A preliminary report for upgrading the 78 million gallon per day Central Treatment Plant has been accepted by the New Jersey Department of Environmental Protection. Plans call for increasing the plant's capacity to 105 million gallons per day and for providing secondary treatment of the completely mixed activated sludge type. A 90 percent biochemical oxygen demand reduction and an 85 percent suspended solids removal are anticipated.

The existing primary facilities are to be incorporated into the completed plan.

Facilities to be added are listed below:

1. Primary treatment facilities including aerated grit chambers, influent piping, meter chamber and primary sedimentation tanks.

2. Secondary treatment facilities including aeration-sedimentation tanks of the completely mixed activated sludge type, air blower facilities, effluent piping and chlorination facilities.

3. Sludge-processing and disposal facilities for barging raw sludge.

4. Anaerobic digestion or vacuum filtration and incineration may have to be added, if required by the regulatory agencies. Anaerobic digestion would be added before sludge barging. Vacuum filtration and incineration would replace barging with or without digestion, if barging is not permitted.

Construction costs of primary and secondary units are estimated at $64,381,000. The project cost of sludge-handling facilities is expected to be about $17,753,000. Work should start in January 1972 and the plant's size may be expanded to 120 million gallons per day if desired.

Plans have also been approved to expand the Sayreville Pumping Station, dualize several major trunk sewers tributary to the plant and dualize the treatment outfall to handle the flow in the year 2010. The total project cost for the expanded sewer system is estimated at $53,780,000.

The Middlesex County Sewerage Authority, with the approval of the New Jersey Department of Environmental Protection, will, in all probability, conclude their final design of the South Bay Collection System in mid-1971. Completion of construction is expected by October 1972 at a project cost of approximately $4,000,000.

The proposed project will eliminate municipal primary sewage treatment plants at South Amboy

and Morgan and Melrose in the Borough of Sayreville. These plants will be converted to pump stations. All waste will then be conveyed to the Central Treatment Plant of the Middlesex County Sewerage Authority through a system of force mains and interceptors.

Milford-Beaver Brook, Conn. (New Haven County)

Completed Project

This new 3.2 million gallons per day activated sludge treatment plant has been completed. Units include a wet well which is drained by four sewage pumps, aerated grit chambers, a primary settling tank, aeration tank, final settling tank and chlorine contact tank. Sludge is pumped to a primary and secondary digester equipped with an emergency overflow to a sludge lagoon.

Cost of the construction is estimated at $3,500,000.

Milford-Gulf Pond, Conn., (New Haven County)

Future Project

Milford and the Town of Orange are presently negotiating to provide sewage treatment for both at the Gulf Pond Treatment Plant. If agreement is reached, the capacity of the Gulf Pond Plant will be tripled. Construction is expected to begin in the Spring of 1972.

Milford-Harbor, Conn., (New Haven County)

Future Project

Future plans call for abandoning this plant in the next three or four years. A pump station will be built to divert the flow now being treated here to the Beaver Brook Treatment Plant.

Milford-Town Meadows, Conn., (New Haven County)

Future Project

A pump station with a one million gallons per day capacity is now being designed to divert a portion of this plant's flow to the Beaver Brook Plant.

Plans call for having this pump station under construction by April 1971 and completed by April 1972.

Nassau County Sewer District #2, N.Y. (Nassau County)

Future Projects

An engineering study will be conducted in 1971 to consider enlargement of the plant. Also under study will be relocation of the plant's outfall into the ocean and advanced waste treatment.

Nassau County Sewer District #3, N.Y. (Nassau County)

Projects Under Construction

Construction work on a new plant has been about 60 percent completed. The estimated cost of the treatment facilities is $50,000,000.

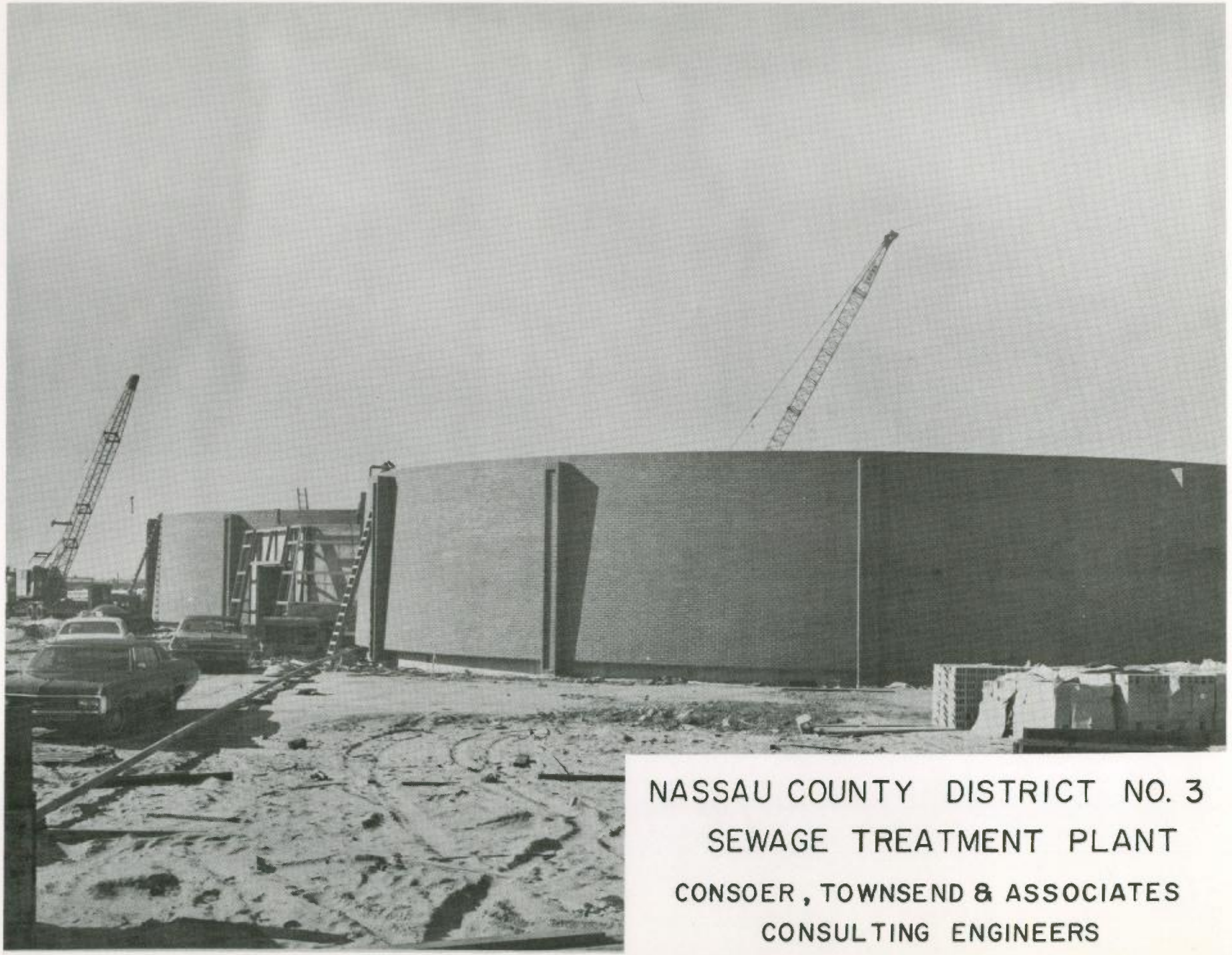
Work is also in progress on sewers, pumping stations and force mains tributary to this plant.

Nassau County Sewer District #4, N.Y. (Nassau County)

Future Projects

This sewer district will serve the entire length of the north shore of Nassau County.

A new proposal is under consideration which calls for the increasing of capacities of existing treatment plants and expansion of collection districts. The plants that would be affected would be Port Washington, Glen Cove and Great Neck Sewer District.



NASSAU COUNTY DISTRICT NO. 3
SEWAGE TREATMENT PLANT

CONSOER, TOWNSEND & ASSOCIATES
CONSULTING ENGINEERS

New Haven-Boulevard Plant, Conn., (New Haven County)

Project Under Construction

The existing primary treatment plant is being upgraded to an activated sludge treatment plant with a design capacity for an average flow of 26 million gallons per day. The work includes modifications to the primary settling tanks, a new sludge pump, eight aeration tanks and eight final settling tanks.

New Haven-East Shore, Conn., (New Haven County)

Future Project

This present primary treatment plant is scheduled for a future expansion of facilities to secondary treatment and a 32 million gallons per day average design flow.

The engineering report has been completed.

New Rochelle, N.Y. (Westchester County)

Future Project

An engineering report has been submitted to the State to upgrade this 15 million gallons per day plant to provide secondary treatment at an approximate cost of $15,000,000.

Newtown Creek, N.Y. (Kings County)

Project Under Construction

Construction of the Manhattan pumping station which is being built to transmit a flow of 170 million gallons per day has been about 50% completed. Cost of this work will be around $12,000,000.

New York State Rehabilitation Hospital, N.Y. (Rockland County)

Future Project

Plans call for diverting the flow from this plant to the new West Haverstraw Treatment Plant when it is completed.

North Bergen - Woodcliff, N.J. (Hudson County)

Future Project

Plans have been submitted to the New Jersey State Department of Environmental Protection to have this plant pump into the proposed regional Hudson County Sewerage Authority Treatment Plant.

Northport, N.Y. (Suffolk County)

Future Project

Plans for a 300,000 gallons per day extended aeration treatment plant await approval from the New York State Department of Environmental Conservation. The plant is designed for 90 percent biochemical oxygen demand and total suspended solids reduction.

North River, N.Y. (New York County)

Project Under Construction

There are two interceptors presently under construction and a third which has been let out for bids. These interceptors are expected to be completed in the third quarter of 1972 at a cost of $90,000,000.

A fourth bid will be let in mid 1971.

Future Project

This plant, which will be located between 137th Street and West 145th Street on the North River, is being designed to handle 220 million gallons per day of raw wastes. These wastes are

NORTH RIVER INTERCEPTOR
NEW YORK CITY
BUREAU OF WATER POLLUTION CONTROL

New York State Health Dept. Photo

now entering the Hudson and Harlem Rivers from upper Manhattan.

The North River Plant will be a step aeration treatment plant, designed for a minimum of 90 percent biochemical oxygen demand and suspended solids removal. The treatment plant will be constructed in conjunction with a recreational facility known as Riverbank.

North River should be completed and operational by the first quarter of 1975 at a cost of approximately $400,000,000. A feasibility report on the plant foundation and treatment units has been approved by New York State and the Federal Government.

Foundation contracts for this plant are expected to be advertised for bids in early 1971. Construction of a 100,000 cubic foot sludge vessel will begin in mid-1971.

Norwalk, Conn., (Fairfield County)

Future Project

A $5,000,000 Phase II expansion of this primary plant has been proposed. Plans call for the upgrading to secondary treatment using activated sludge. An average design flow of 30 million gallons per day and 95 percent removal of biochemical oxygen demand and suspended solids are also planned. Proposed units costing $3,000,000 include final settling tanks, a sludge incineration unit, aeration tanks, additional thickening tanks, and a heat exchanger.

No date for the beginning of construction of Phase II has been set.

Nyack, South Nyack and Upper Nyack, N.Y.
(Rockland County)

Future Project

Plans and specifications are in progress for the diversion of sanitary wastes from the Village of Nyack, South Nyack and Upper Nyack to the

Orangetown District No. 2 Secondary Treatment Plant. The existing primary plants at these locations will be abandoned.

Pump stations will be constructed to lift the raw sewage from the river level to the old Erie Railroad right-of-way and from this point it will flow by gravity to the Orangetown-Sparkill Pumping Station.

Oakwood Beach, N.Y. (Richmond County)

Future Projects

Engineering reports for upgrading to step aeration and expanding from 15 million gallons per day to 40 million gallons per day (second stage) with minimum removals of 90 percent biochemical oxygen demand and suspended solids have been submitted to New York State. Outfall design is being given careful consideration to insure that there will be no further degradation of Staten Island beaches from this plant.

Several contracts will be let for the construction of force mains, interceptors and pumping stations at a cost of $89,000,000.

Total cost of this entire project is estimated near $130,000,000.

Orangetown Sewer District #2, N.Y. (Rockland County)

Completed Project

Flow from the Borough of Rockleigh, New Jersey was added to the Orangetown Sewer District during 1970.

Future Project

This 8.5 million gallons per day secondary treatment plant was put into full service in 1969. New construction will improve existing facilities by increasing biochemical oxygen demand reduction to 85 percent.

Construction to be done is as follows: two domes over the primary clarifiers, two domes over the trickling filters, enclosure of the grit chamber and addition of ozonization equipment. Costs are estimated at $600,000.

Flows from Nyack, South Nyack and Upper Nyack will be diverted to the Orangetown plant.

Ossining, N.Y. (Westchester County)

Future Project

The two existing treatment plants in Ossining at Liberty Street and at Water Street will be converted to pump stations and divert their flows to the new Westchester County Plant now being planned at Ossining.

Owls Head, N.Y. (Kings County)

Completed Project

Installation of new chlorine storage tanks and piping has been completed at a cost of $107,000.

Future Project

A consultant's engineering report and application for funds have been submitted to New York State and the Federal Government. The report deals with upgrading the plant to full step aeration. Project costs including additional interceptors, force mains and pump stations are expected to be nearly $99,000,000.

Oyster Bay, N.Y. (Nassau County)

Completed Project

Two centrifugal pumps have been installed and work on re-routing a ten-inch lateral sewer at Harbor Place and Shippoint Lane has been completed.

Peekskill, N.Y. (Westchester County)

Future Project

The existing plant located in Peekskill will be incorporated into the Westchester County System.

Cost of upgrading the existing plant will be about $22,000,000.

Penn Central R.R., Harmon, N.Y. (Westchester County)

Future Project

The existing oil separators at Harmon Shops will be kept in service and their effluent will be diverted to a new Westchester County Plant to be constructed at Ossining. An engineering report is being prepared for this 700,000 gallons per day diversion.

Perth Amboy, N.J. (Middlesex County)

Future Project

An engineering report has suggested converting this primary treatment plant to a pumping station to go to Middlesex County Sewerage Authority. Work should be scheduled to begin in January 1972 and be completed about June 1973.

Costs are estimated at $3,000,000.

Port Chester, N.Y. (Westchester County)

Future Project

A report on the upgrading of this plant to secondary treatment was completed. Final design is now underway. Construction is expected to commence in the fall of 1971 with completion expected by the summer of 1973. This plant will be operated by the Westchester County Department of Public Works. The plant improvements will cost about $6,000,000.

Sludge from Blind Brook will be treated by thermal oxidation at this plant and the Port Chester effluent will be discharged to Long Island Sound via the Blind Brook outfall.

Port Jefferson Sewer District, N.Y. (Suffolk County)

Future Project

An engineering report is being prepared with recommendations to upgrade the present primary treatment plant. Activated sludge treatment is anticipated with an expansion in design capacity to 6 million gallons per day. Other types of treatment will be studied, including physical-chemical treatment. The effluent will be discharged through an outfall extending one mile into Long Island Sound.

Port Richmond, N.Y. (Richmond County)

Completed Project

Construction of the West Branch Interceptor has been completed at a cost of about $3,900,000.

Future Projects

Consultants have prepared an engineering report which has been approved by New York State and the Federal Government. They have also approved an application for 60 percent reimbursement of costs.

The report deals with converting the Port Richmond Plant from a 10 million gallons per day primary facility to a 60 million gallons per day step aeration plant with a 90 percent minimum biochemical oxygen demand and suspended solids removal.

Included in the expansion are additional pumping stations, force mains and interceptors in the plant's tributary area. The completed facility is expected to be operational in 1975 for an outlay of $28,200,000.

Design of the East Branch Interceptor is nearing completion. Project cost is estimated at $130,000,000.

Port Washington, N.Y. (Nassau County)

Project Under Construction

The capacity of the present plant will be doubled to 6 million gallons per day and an additional storage building built. Two pumps are now being installed.

Future Project

A new pump station at the treatment plant and one at the Flower Hill industrial park are proposed to be built in the future.

Rahway Valley Sewerage Authority, N.J. (Middlesex County)

Project Under Construction

Construction is continuing to upgrade this primary plant to provide an 85 percent removal of biochemical oxygen demand and total suspended solids. The estimated total cost of the project has increased to $16,000,000.

First stage construction is approximately 90 percent complete. Second stage work is 15 percent complete.

Red Hook (East River Environmental Protection Center), N.Y. (Kings County)

Future Project

A feasibility report to construct a step aeration treatment plant with a 90 percent minimum oxygen demand and suspended solids removal in conjunction with an incinerator at the former site of the Brooklyn Navy Yard has been approved by New York State. An application for financing is now being considered.

Total cost of this work, excluding the incinerator, is expected to be about $200,000,000 and will be designed for a capacity of 70 million gallons per day.

Rockaway, N.Y. (Queens County)

Future Project

A preliminary engineering report for expanding and upgrading this plant has been submitted to New York State. The improved plant will provide a minimum of 90 percent suspended solids and biochemical oxygen demand removal for a flow of 45 million gallons per day.

The phases of the work are improvements to the existing plant to be followed by the expansion and upgrading phase.

An engineering report and an application for final approval has been submitted to New York State. Total project cost is estimated at about $35,600,000.

Construction work is expected to begin in 1972 and be completed in early 1975.

Rockland County Sewer District #1, N.Y. (Rockland County)

Project under Construction

Work on a sewer system is under way and is expected to be completed by the spring of 1971 at a total cost of approximately $34,000,000.

The new system will include 63 miles of sewers and nine pumping stations. Over 500 miles of lateral sewers, tributary to the County system, are being constructed by the Towns of Clarkstown, Saddle River, Dester Park, Ramapo and the Village of Spring Valley.

Third stage construction work is under study. This will call for eventually doubling the capacity of the treatment plant and expanding the service to include the now unsewered portions of District #1. Plant specifications will call for design criteria of 95 percent removal of biochemical oxygen demand and suspended solids.

Roslyn, N.Y. (Nassau County)

Future Project

In the next six months, a screening system should be installed at the chlorine contact tank for additional removal of solids. An engineering report is now being prepared to study future needs of the facility.

Sayreville - Melrose, N.J. (Middlesex County)

Future Project

This primary treatment plant will be converted to a pump station and the waste flow will be conveyed to the Middlesex County Sewerage Authority's proposed upgraded secondary treatment plant.

Work on the pump station is expected to be completed by October 1972.

Sayreville - Morgan, N.J. (Middlesex County)

Future Projects

A new Crossway Creek Interceptor Sewer is to be constructed. This will eliminate various small pumping stations, service areas of Sayreville which are presently unsewered and reduce flow in overtaxed force mains and sewers. All waste will be conveyed to the Morgan Section of Sayreville.

The existing primary sewage treatment plant will be converted to a pump station. The waste will be pumped to South Amboy on its route to the Central Treatment Plant of the Middlesex County Sewerage Authority.

Construction is expected to start by August 1971 and be completed by October 1972.

South Amboy, N.J. (Middlesex County)

Future Project

The prsent primary treatment plant is to be

demolished and a new pump station and force main to the Middlesex County Sewerage Authority is to be built. The project which is to be completed by October 1972, is estimated to cost $350,000.

Spring Creek, N.Y. (Kings County)

Project Under Construction

The New York City Sewer System is of the combined type and as a result, a large amount of raw sewage is discharged into the receiving waters during rain storms. This sewage is especially deterimental in the vicinity of potential bathing beaches where it becomes a public health hazard.

An Auxiliary Program plan is being completed to impound, disinfect, settle and degrit these combined flows in the vicinity of proposed bathing beaches. Construction of the first prototype plant has been 70 percent completed and is located at Spring Creek on Jamaica Bay. This $12,000,000 plant will have a reservoir with an impoundment capacity of 12 million gallons and should be completed by the third quarter of 1970.

Interceptors tributary to the Spring Creek Plant are being constructed in three phases. The first and second are completed. Construction will be started on the third interceptor in mid-1971.

After each storm, that water which has been collected in the impoundment reservoir will be pumped to the 26th Ward Plant for full treatment.

In conjunction with this work, an extensive study was begun in 1968 at an approximate cost of $1,000,000 to make an evaluation of water quality before and after the Spring Creek Plant starts its operation.

Stamford, Conn. (Fairfield County)

Future Project

Plans for upgrading to step aeration and

expanding this treatment plant are being reviewed by the Connecticut Water Resources Commission. Construction will change the design flow from 10 to 20 million gallons per day and provide for a 95 percent biochemical oxygen demand reduction at an estimated cost of $5,000,000 to $6,000,000. At this time no date has been set for the start of construction.

New equipment will include mechanical aerators and aeration tanks, primary and secondary clarifiers, a new lab building and pump stations.

Suffolk County Sewer District #3, N.Y.
(Suffolk County)

Future Project

This southwest sewer district with an area of 57 square miles and a population of 250,000 is presently not serviced. An engineering report for sewering this area and treating its waste waters has recently been completed. The design process for treatment in conformance with New York State Water Quality Standards is presently under selection.

The plant will be built for an average flow of 30 million gallons per day and a peak flow of 60 million gallons per day. Construction work should begin in this district in 1971 and be completed by 1975. Total cost of the plant and sewer system is estimated at $291,000,000.

Stratford, Conn., (Fairfield County)

Future Project

Final design for upgrading this plant has been completed and approved. Bids for construction were accepted in December 1970. Work should begin in spring of 1971 and take about one and one-half years to complete.

Activated sludge treatment will be provided for a 10 million gallons per day flow at an approximate total project cost of $10,600,000. Sludge

will be disposed of by vacuum filtration and incineration. The increase in plant capacity provides for some areas of the city which were previously unsewered.

Tallmans Island, N.Y. (Queens County)

Future Project

The Bureau of Water Pollution Control plans to make this an 80 million gallons per day step aeration plant with minimum removals of 90 percent biochemical oxygen demand and suspended solids at a cost of $32,500,000.

An engineering report for this project has been approved by New York State and the Federal Government for funding of 60 percent of the eligible costs.

Construction work is scheduled to begin in the third quarter of 1971 and finish in 1974.

Tarrytown, N.Y. (Westchester County)

Future Project

The existing 1.5 million gallons per day primary plant is scheduled to be converted to a pump station and have its flow diverted to the Westchester County System at Yonkers.

26th Ward, N.Y. (Kings County)

Future Project

New York State has approved an engineering report for enlarging the capacity of the 26th Ward Plant to 85 million gallons per day, the 2015 design flow, and for providing biological treatment by step aeration with a minimum of 90 percent suspended solids and biochemical oxygen demand removal. The project cost is estimated at approximately $37,000,000.

Construction is scheduled to begin the first quarter of 1970 and be completed at the beginning of 1974.

Work on the plant pier sludge line and access road was begun in August of 1970.

Wards Island, N.Y. (New York County)

Completed Project

Rehabilitation of the plant's final settling tank was completed at a cost of $1,100,000. The work includes the installation of new flights and collecting mechanisms.

Future Project

Approval has been granted by New York State for expanding Wards Island to 290 million gallons per day by the step aeration process with minimum removals of 90 percent biochemical oxygen demand and suspended solids. This work will include new separate sludge digestion facilities. Final design is now under way by consultants with total project cost estimated at $50,500,000.

Funding has been approved for 60 percent of the eligible costs by New York State and the Federal Water Quality Administration.

Construction is scheduled to begin in the second quarter of 1971 and be completed during 1974.

Work on two phases began in October, 1970. These are improvements to the Bronx-Manhattan grit chambers and construction of a dock at the north end of the property.

West Haven, Conn. (New Haven County)

Project Under Construction

Work is continuing to upgrade this 23 million gallons per day plant to provide activated sludge treatment designed for 95 percent biochemical

oxygen demand and suspended solids reduction.

West Haverstraw, N.Y. (Rockland County)

Future Project

This plant's flows will be diverted to the new Joint Regional Sewerage Board Plant at West Haverstraw, when the plant is completed.

Westport, Conn. (Fairfield County)

Future Project

This secondary treatment plant will expand its capacity to a design flow of 3 million gallons per day with a 95 percent biochemical oxygen demand reduction. Costs are estimated at $5,000,000.

Woodbridge, N.J. (Middlesex County)

Future Projects

The existing facility is to be upgraded to activated sludge treatment and designed for 15.5 million gallons per day flow with 90 percent biochemical oxygen demand and total suspended solids reduction. Approximately 30 percent of the daily flow will receive tertiary treatment.

Target date for the start of construction is summer, 1972. Costs are estimated at $8,000,000.

Present treatment plants in Keasby and Carteret will be converted to pump stations.

Yonkers Joint Meeting, N.Y. (Westchester County)

Future Project

This existing 63 million gallons per day primary treatment plant is to be converted to activated sludge treatment. Plans for this have been submitted to the State for approval. Construction began in the summer of 1970. The job is expected to cost about $55,000,000.

1970
UPPER EAST RIVER
and
WESTERN LONG ISLAND SOUND SURVEY

INTRODUCTION

A water pollution survey was conducted in the northern portion of the East River and the westerly end of the Long Island Sound during the summer of 1970. Long Island Sound lies between the north shore of Long Island, the east shore of Westchester County, and the south shore of Connecticut. It is bounded by the Atlantic Ocean on the east and the East River on the west. The Sound is used extensively for recreational and fishing purposes and it is important that the waters be kept free from pollution. Industries and sewage treatment plants in New York City, Long Island, Westchester County and Connecticut discharge their effluents into the East River and Long Island Sound. The purposes of this study were (1) to determine the present condition of the waters, and (2) to compare the results of this survey with those obtained from a similar survey conducted in 1959.*

PROCEDURE

Twelve sampling stations were selected in the East River and Long Island Sound. These stations extended from Rikers Island in the East River to Hempstead Harbor in Long Island Sound. The stations are shown on a survey map on the following page (Figure 1) and a description is given in an Appendix at the end of this report.

Two boats were used to collect samples on eleven (11) days between July 28, 1970, and August 14, 1970. All samples were taken during daylight hours. Each station was sampled five (5) feet below the surface three (3) times a day, and determinations were made for temperature, dissolved oxygen, pH, chlorides, turbidity, ortho-phosphate, nitrate, nitrite, total carbon, total organic carbon, chromium, and iron. Several times during the survey determinations were made for chlorophyll and for total phosphate. All dissolved oxygen determinations were made aboard the boats using a modified Winkler method. Samples for the determination of the Most Probable Number of coliform organisms were taken for all stations on the first run and for half of the

*1959 Water Pollution Survey in the East River and Long Island Sound, Interstate Sanitation Commission.

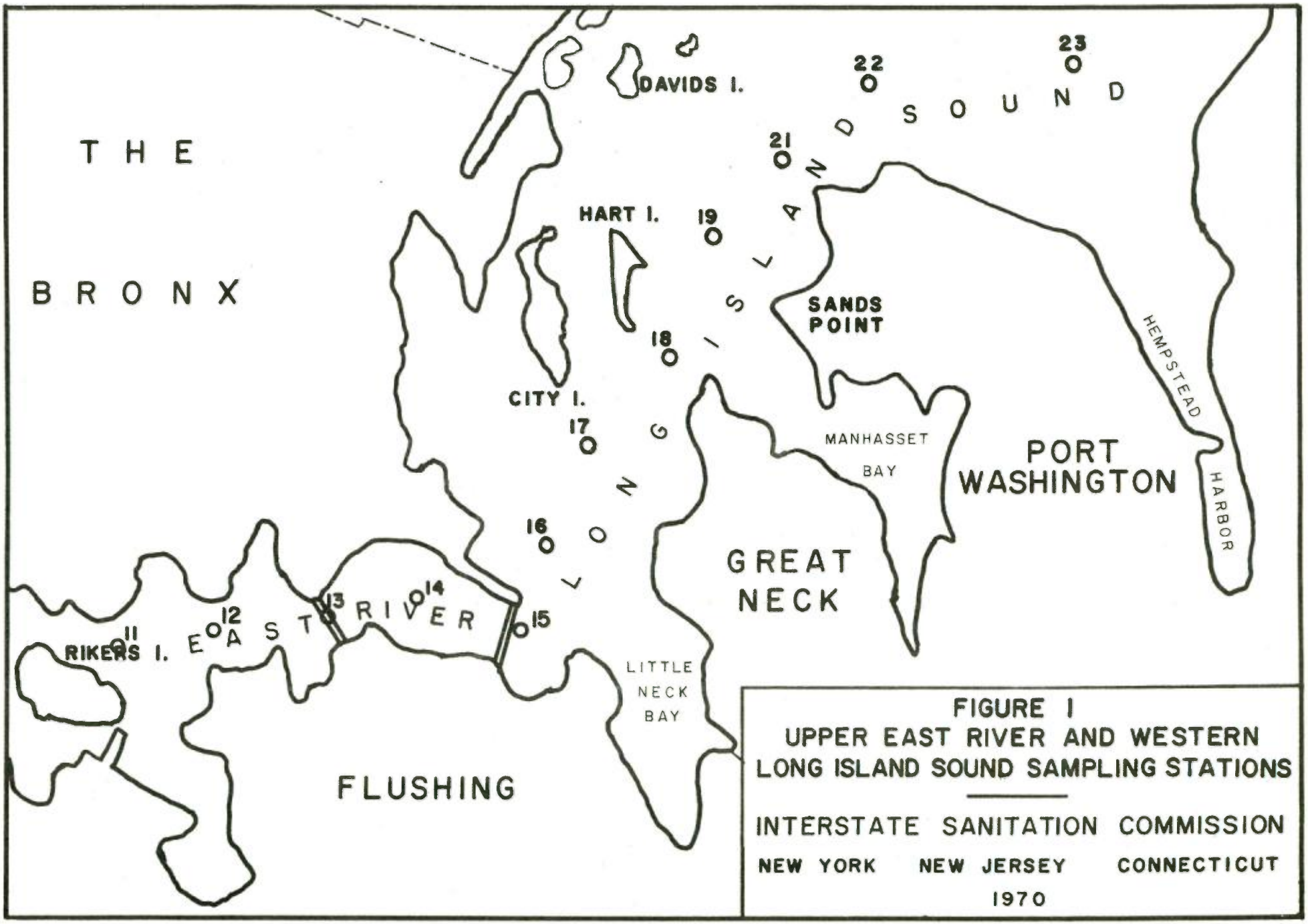


FIGURE 1
UPPER EAST RIVER AND WESTERN
LONG ISLAND SOUND SAMPLING STATIONS

INTERSTATE SANITATION COMMISSION
NEW YORK NEW JERSEY CONNECTICUT
1970

stations on the third run of each sampling day. These samples were taken in sterile bottles and tubes were inoculated immediately aboard the vessels. The tubes were then returned to the Commission laboratory where they were incubated and the tests completed. All tests were made using instrumental techniques or according to "Standard Methods for the Examination of Water and Wastewater."

The data for each station were analyzed and arithmetic means were determined for each parameter except coliform density, pH and dissolved oxygen. The geometric mean was used for coliform denisty and logarithmic averages were used for pH. Dissolved oxygen was analyzed in accordance with procedures previously developed by the Commission.**

At a given station, high and low tide occur approximately one (1) hour later each day. Because of this and the number of days samples were taken, samples were obtained for all parts of the tidal cycle.

RESULTS

The results at each station are summarized in Table I.

Dissolved Oxygen

The tidal variations of percent saturation of dissolved oxygen and the average percent saturation were determined at each station. The method of lease squares was used to determine the curves of best fit at each station. A typical curve is shown in Figure 2 . The average percent saturation of dissolved oxygen varied from 25.4% at Station 11 to 98.4% at Station 23, which corresponds to concentrations of 1.87 mg/l and 7.54 mg/l of dissolved oxygen respectively. Many of the stations in Long Island Sound had single measurement percent saturation values greater than 100%, which is attributed to the presence of algae. As shown in Figure 3, at the stations common to the 1959 and 1970 surveys (Stations 11-19) the mean percent saturations of dissolved oxygen varied from 4.9% to 11.7% higher in 1970 compared to 1959.

Coliform Density

The coliform density ranged from a high average value of 56,690 MPN/100 ml (Most Probable Number per 100 milliliters) at Station 11 to a low of less than 100 MPN/100 ml

**Method for Analyzing Observed Data in Tidal Waters, Interstate Sanitation Commission.

TABLE I : SUMMARY OF RESULTS

STATION	TEMPERATURE (°C)	CHLORIDES (mg/1)	D.O. (mg/1)	% D.O. SAT. (A)	COLIFORM PENSITY (MPN/ 100 ml) (B)	pH (C)	TURBIDITY (JTU)	ORTHO PO_4-P (mg/1)	NO_3-N (mg/1)	NO_2-N (mg/1)	TOTAL CARBON (mg/1)	TOTAL ORGANIC CARBON (mg/1)	IRON (mg/1)	CHROMIUM (mg/1)	CHLOROPHYLL A (mg/1)
11	21.6	13,640	1.87	25.4	56,690	6.9	2.5	0.32	0.064	0.056	31.6	8.0	0.275	<0.05	0.022
12	21.4	13,696	2.04	27.4	38,220	6.9	2.6	0.31	0.065	0.053	31.1	7.5	0.263	<0.05	0.019
13	20.9	13,891	2.37	31.7	>24,970	7.0	2.2	0.29	0.055	0.040	30.6	7.1	0.230	<0.05	0.026
14	20.8	13,973	2.69	34.7	<25,950	7.0	2.2	0.27	0.053	0.036	30.0	6.7	0.221	<0.05	0.053
15	20.7	14,030	2.96	38.9	12,920	7.0	2.1	0.25	0.048	0.031	30.2	7.1	0.201	<0.05	0.051
16	20.4	14,186	3.54	47.1	4,440	7.0	1.9	0.21	0.038	0.023	30.0	7.0	0.177	<0.05	0.060
17	20.9	14,243	4.66	62.5	2,230	6.3	2.3	0.20	0.044	0.024	30.2	7.4	0.119	<0.05	0.060
18	20.9	14,226	5.07	67.8	1,800	6.5	2.1	0.19	0.040	0.021	29.8	7.6	0.115	<0.05	0.046
19	21.0	14,297	5.73	76.9	<950	6.6	2.0	0.18	0.034	0.019	29.9	7.8	0.111	<0.05	0.040
21	21.0	14,313	6.34	85.0	<220	6.7	2.0	0.16	0.024	0.017	29.7	7.9	0.110	<0.05	0.043
22	21.0	14,371	6.36	83.7	<180	6.8	1.9	0.13	0.025	0.016	29.6	8.1	0.062	<0.05	0.042
23	21.2	14,438	7.54	98.4	<110	6.9	1.9	0.11	0.015	0.012	29.4	7.8	0.077	<0.05	0.045

(A) AVERAGE FROM SINE CURVE
(B) GEOMETRIC MEAN
(C) LOGARITHMIC AVERAGE

FIGURE 2

PERCENT SATURATION OF DISSOLVED OXYGEN AS A FUNCTION OF TIDAL CYCLE FOR A TYPICAL SAMPLING STATION

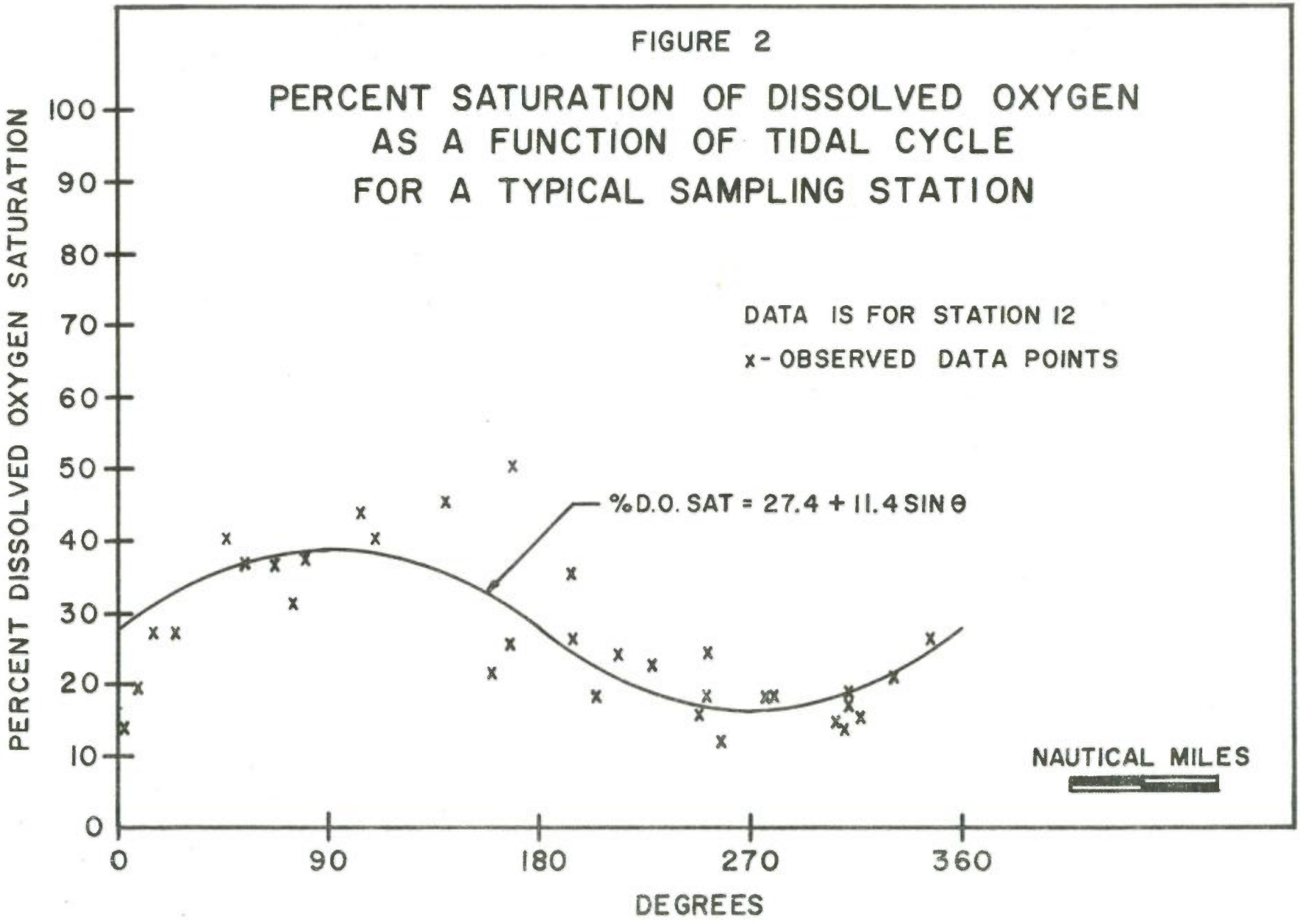
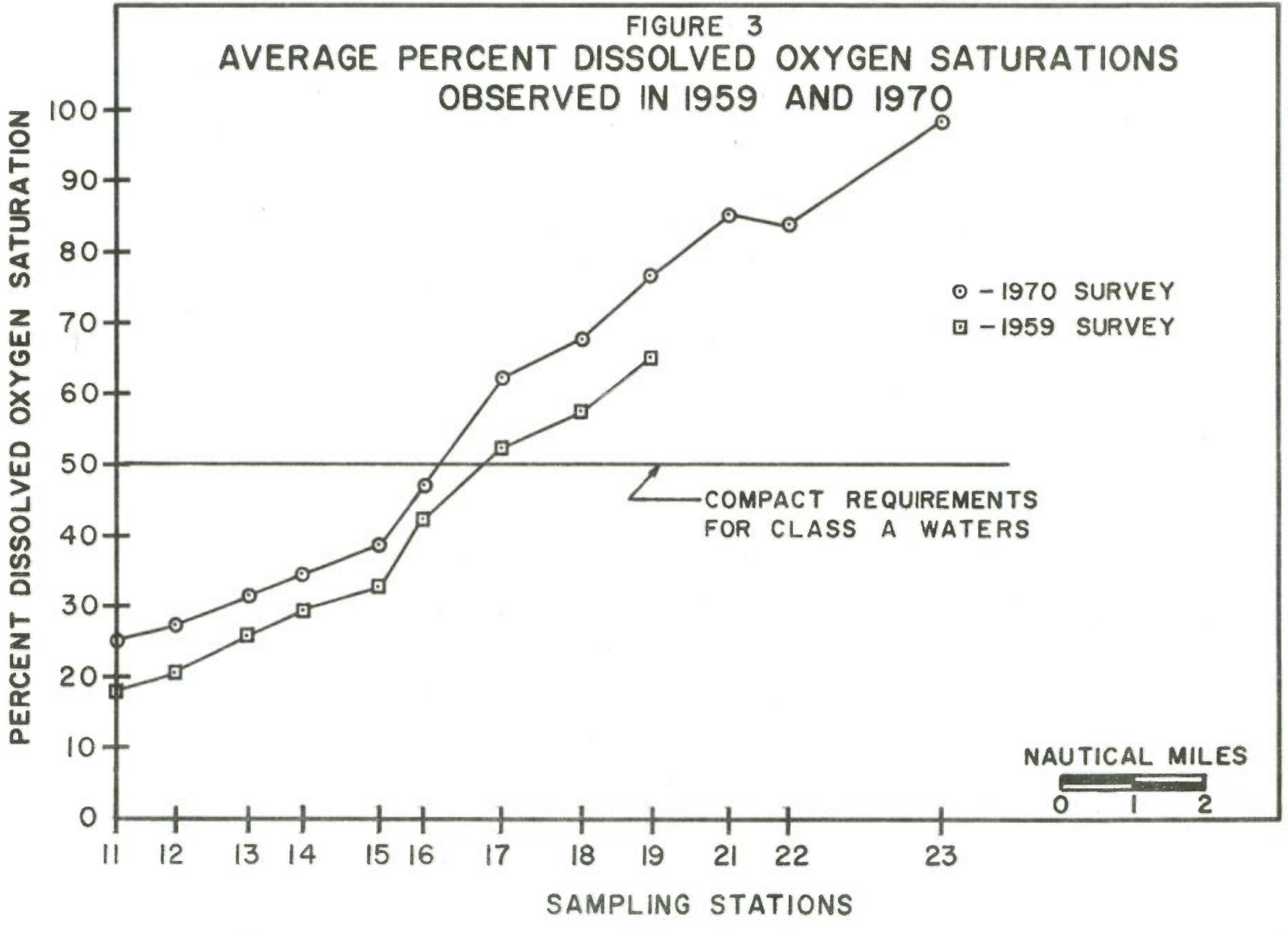


FIGURE 3

AVERAGE PERCENT DISSOLVED OXYGEN SATURATIONS OBSERVED IN 1959 AND 1970



at Station 23. As shown in Figure 4, the values obtained in 1970 are higher than those obtained in 1959.

Other Parameters

The water temperature during the survey showed very little variation between the stations. The average temperature ranged from 20.4°C at Station 16 to 21.6°C at Station 11, the station farthest into the East River.

The values for chlorides in the East River were lower than those for Long Island Sound. The farther east the station location, the higher the chloride concentrations (probably due to less influence of the Hudson and East Rivers as fresh water diluents).

All stations were in the pH range of 6.5-7.0 except for Station 17 which had an average pH of 6.3.

The values for turbidity were relatively constant. The low value was 1.9 JTU and the high value was 2.6 JTU.

The values for nutrients (ortho-phosphate - P, 0.32 mg/l; nitrate - N,0.064 mg/l; and nitrite - N,0.056 mg/l) were a maximum at Station 11 in the East River and in general steadily decreased to a low value of 0.11 mg/l, 0.015 mg/l, and 0.012 mg/l respectively at Station 23 in Long Island Sound. Iron and total carbon also show the same trend, but total organic carbon shows a downward trend from Station 11 (8.0 mg/l) to Station 14 (6.7 mg/l) and then an upward trend to Station 23 (7.8 mg/l). Values for chromium were less than 0.05 mg/l for all stations.

Chlorophyll A values (indicating the presence of algae) showed no definite trend except that the values to the west of the Whitestone Bridge were much lower than the rest of the stations. Ortho-phosphate - P was approximately 93 percent of the total phosphate - P value.

DISCUSSION

As already mentioned, compared to 1959 the dissolved oxygen condition of the waters is improved and the coliform density has deteriorated. Shown in Table II is a summary of the sewage discharged to the East River and Long Island Sound in the area of the Interstate Sanitation Commission survey. The total volume of sewage being treated has

FIGURE 4

AVERAGE COLIFORM DENSITIES OBSERVED IN 1959 AND 1970

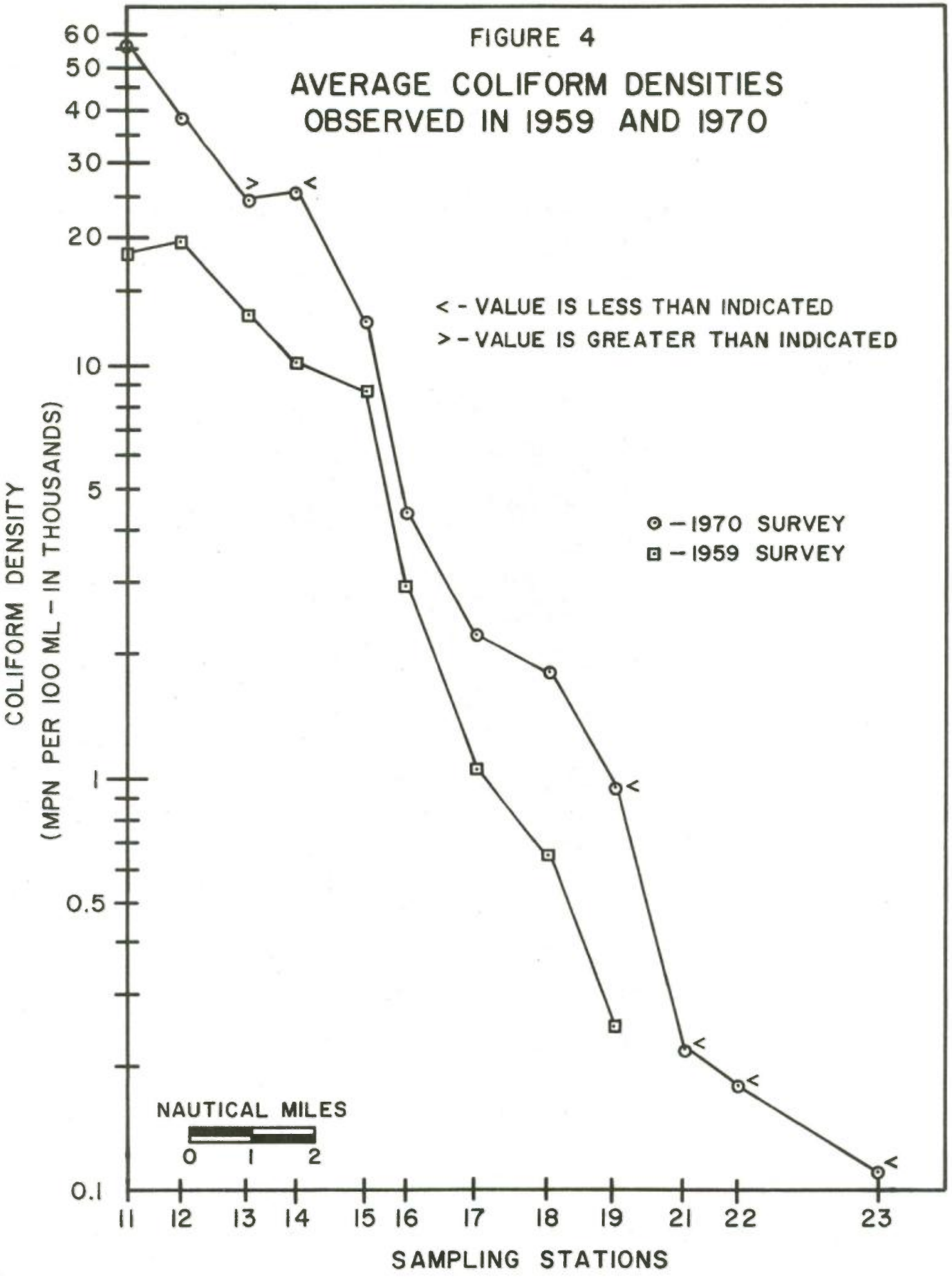


TABLE II

MGD of Sewage Discharged to the
East River and Long Island Sound in the
Area of the Interstate Sanitation Commission Surveys

Receiving Waterway	SECONDARY TREATMENT		PRIMARY TREATMENT		SCREENING	
	1959	1970	1959	1970	1959	1970
East River	475	740	--	--	--	--
Long Island Sound	6	15	17	32	16	--
Total	481	755	17	32	16	--

increased. This is reflected in the increased dissolved oxygen level of the waters, although the Tri-State Compact requirement of 50 percent saturation for Class A waters is still not being met for Stations 11 through 16. An increase in the percent dissolved oxygen saturation and a decrease in coliform densities can be expected after the completion of construction projects now underway at many of the sewage collection systems and treatment plants discharging to the waters covered by this survey. These projects include (1) building of pumping stations to pick up present direct discharges to the receiving waters, (2) increasing the hydraulic capacity of some of the plants, (3) upgrading to secondary treatment and increasing the degree of secondary treatment given by many of the plants, and (4) installation of adequate chlorination facilities at many of the plants.

Nutrients and the other parameters were not previously measured in the Commission's surveys. The values obtained in this survey form a reference baseline for future studies conducted in District waters.

SUMMARY AND CONCLUSIONS

(1) The percent saturation of dissolved oxygen has increased since 1959, although the waters from stations 11 to 16 still do not meet the Tri-State Compact requirement of 50 percent saturation for Class "A" waters.

(2) Even though there are increased chlorination facilities since 1959, these have not kept pace with the increased loadings and the coliform density in the receiving waters has increased.

(3) No significant changes in (1) or (2) is expected until construction projects presently underway are completed.

(4) A baseline for nutrients and other parameters has been established for future reference.

APPENDIX

DESCRIPTION OF SAMPLING STATIONS

STATION 11 — Mid-channel of East River

East-West Range -
Fl.G. Beacon (College Point) with stack on Rikers Island.

North-South Range -
Line from center of Sanitation Pier (Hunts Pt.) with Fl.R. #4 Buoy (Station approx. 250 yds. S.E. of #4 Buoy).

STATION 12 — Mid-channel of East River

East-West Range -
Sludge storage tank (Tallmans Island) with large gas storage tank (Hunts Pt.).

North-South Range -
Line of #1 Bell Buoy with Fl.G. Beacon, College Point. (Station approx. 200 yds. north of #1 Bell Buoy).

STATION 13 — Mid-channel of East River

Under center of Whitestone Bridge.

STATION 14 — Mid-channel of East River

East-West Range -
Bridge Tower (Old Ferry Pt.) with Tower on New Throggs Neck Bridge (Fort Schuyler)

Northeast-Southeast Range -
Fl.G. Bell Beacon (Whitestone) with water tank (Fort Schuyler).

STATION 15 — Mid-channel of East River

East-West Range -
R-Nun #2 (Willets Pt.) with tower on Whitestone Bridge (Bronx)

North-South Range -
Fl.R. #48 Bell Buoy with R-Nun #2 (Little Bay)

STATION 16 — Mid-channel of Long Island Sound

East-West Range -
Mast at Kings Pt. with water tower (Fort Schuyler)

North-South Range -
Stepping Stone Light with Fl.R. #48 Bell Buoy (Fort Schuyler)

STATION 17 — Off Stepping Stone Light (approx. 300 yds. to N.)

North-South Range -
Stack on Hart Island with Bridge Tower (Fort Schuyler)

East-West Range -
Stepping Stone Light with Mast at Kings Pt.

STATION 18 — Off Fl.R. Bell - Hart Island

North-South Range -
Gangway Rock Light with Stepping Stone Light.

East-West Range -
Fl. R. Bell (Hart Island) with tip of Hewlett Pt.

STATION 19 — Off Gangway Rock Light

North-South Range -
Tower on Sands Point with stack on Hart Island

East-West Range -
#1 Gong with Fl. Bell Buoy #27
(Gangway Rock)

STATION 21

East-West Range -
#23 Black Bell and #25 Fl. Green

North-South Range -
Sands Point Light and Execution Light

STATION 22

East-West Range -
Execution Light and Matinicock Point

North-South Range -
1000 feet North of Bell Buoy #23

STATION 23

East-West Range -
Execution Light and #21 Flashing Green
on Matinicock Point

North-South Range -
Water Tower on Glen Cove and Larchmont
Breakwater Light

INDUSTRIAL SURVEILLANCE PROGRAM

Effluents from industrial plants make up a large portion of the total water discharged to District Waters. These plants and the quality of their effluents vary widely. Types of plants located on District Waters include: oil refineries, chemical producers, transportation facilities, copper refineries, coffee manufacturers, power companies, food processors and ship yards.

Most of those companies located within the bounds of the Interstate Sanitation District have been visited by Commission representatives to assess their pollutional potential. During 1970, the Commission has concentrated its efforts on sampling waste water discharges. Those companies which were considered to have a high pollutional potential have been given first priority in our sampling program.

The companies sampled in 1970 were located mainly on the Arthur Kill, Newark Bay and the Kill Van Kull. A total of 25 sampling investigations were made at 19 different companies. Samples are analyzed for a wide variety of parameters including: oils, heavy metals, biochemical oxygen demand, solids, phosphates and nitrates.

Results of analyses are provided to the individual companies and other regulatory agencies.

General information and sampling data are being stored on a computer to provide for ready access and ease in handling.

As the industrial program progresses, the Commission will build up a background of data on all discharges from industries as has been done on municipal treatment plants. This information should prove to be very useful in determining the effect of industrial discharges on water quality and progress made toward pollution abatement.

THE COMMISSION LABORATORY

The laboratory facilities of the Interstate Sanitation Commission, which were moved and enlarged last year, continue to be improved to permit more extensive testing. In order to make a more sophisticated assessment of pollution problems, additional parameters must be tested for to complement those tests normally conducted such as biochemical oxygen demand and solids determinations.

Metals analysis is one area of interest. The purchase of an atomic absorption spectrophotometer and the necessary accessories have enabled the laboratory to detect such selected metals as cadmium, chromium, copper, iron, lead, manganese, mercury, nickel and zinc. These metals are not only of interest for their effect on the receiving waters but also because too high a concentration in the influent can seriously lower the efficiency of biological treatment plants.

Detection of specific types of oil is also desirable to enable the Commission to determine the origin of oil spills. To help in this identification of oil types as well as to perform other determinations the following equipment has been obtained and is being placed into operation: an infrared spectrophotometer, a gas chromatograph, a kinetic viscosity bath, a semi-automatic sulfur titrator and an induction furnace with purifying train.

The ability of the laboratory to perform more extensive testing will be of great advantage in building up information for water pollution abatement. To this end, these expanded facilities have enabled the Commission to act as a regional laboratory to perform tests for the States as well as Federal agencies such as the Corps of Engineers.

TREATMENT PLANT OPERATOR TRAINING PROGRAM

For the past year, the Interstate Sanitation Commission has provided a laboratory training course for sewage treatment plant personnel. The aim of this program is to increase the efficiency of the sewage treatment plants. This is most important because many of the plants are upgrading to secondary (biological) treatment. The course is given in a 26-foot Mobile Laboratory. At a plant's request, the laboratory is stationed at the plant for two or three days to provide ample time to cover routine testing as well as specific problems the plant may have. The Commission sends an engineer and a chemist to the plant, thus providing the technical ability to discuss a wide spectrum of topics while fostering a worthwhile exchange of information.

Generally, the main tests covered are for complete solids, biochemical oxygen demand, and coliform density by the MPN fermentation technique. Where a plant has a digester the volatile acids test is also covered. In addition to these tests, other laboratory methods are discussed and demonstrated, such as the correct way to clean glassware, how to weigh, how to record data properly, and the importance of duplicate cases in analyses.

No more than three students are accepted for the course at a particular plant. This makes it possible to give the students what actually amounts to private tutoring.

The 23 sewage treatment plants visited so far point out the need for this type of program. It has been observed that many of the laboratories have not actually followed basic rules of chemistry, such as using clean glassware, calibrated balances, and standardized solutions. Commission personnel are also available to answer any questions concerning laboratory procedures.

Many of the plants have requested repeat visits. At these visits, new personnel will be trained and those personnel already trained will be shown additional tests not covered in the previous visits.

AUTOMATIC DATA PROCESSING

In February 1970, the Commission switched its data processing facilities from an IBM QUIKTRAN 2 Time Share system to an IBM CALL/360 Time Share system. This system provides keyboard input and output. A Data Computing Cardliner 15 card reader has been linked to the system to accommodate card input. The Commission's Type 35 ASR Teletype, when used in conjunction with CALL/360, provides paper tape input and output. A Dataphone links the equipment in the Commission office to an IBM 360 Data Processing System located at an IBM Computing Center. The Commission has recently ordered another Type 35 ASR Teletype which will also be able to be used as an input/output terminal with the computer.

The CALL/360 system provides several advantages over the QUIKTRAN 2 system. CALL/360 uses a larger and faster computer than QUIKTRAN 2 and therefore, provides much faster computing. CALL/360 accommodates four programming languages: FORTRAN, BASIC, COMBASIC and PL/1. The system has multiple file capabilities which permit data to be stored and retrieved at any time. In addition to the Commission's programs, CALL/360 has a vast library of programs that are available for the Commission's use at any time. The library contains statistical and mathematical routines as well as programs for engineering and other applications.

The Commission has set up an information retrieval system for all industries discharging into Interstate Sanitation District waters. Up-to-the-minute sampling results and the results of all previous plant samplings are permanently stored in the computer. The Commission can query the computer and receive information on a specific company, on a group of companies, or in any combination of the parameters stored in the computer.

During periods of high air pollution potential the computer is accessed via the Teletype. Hourly dosage data on air quality parameters from stations in the States of New York, New Jersey and Connecticut and from the City of New York are transmitted to the computer and stored on a disk. Results are computed and are output to the Teletypes in two forms: hard copy and punched paper tape. The punched paper tape with the latest results is then transmitted to the appropriate agencies.

During the summer of 1970, the Commission ran a water quality survey in the northern part of the East River and the western portion of Long Island Sound. The computer was used to analyze the data. In one of the analyses the method of least squares was used to generate curves showing the tidal variation of the percent saturation of dissolved oxygen at each sampling station.

III. A I R P O L L U T I O N

New York

New Jersey & Connecticut

GENERAL

During this past year, the Commission's program in air pollution was strengthened and expanded. On April 16, 1970, the Interstate Sanitation Commission was designated as the Coordinating and Planning Agency for the New Jersey-New York-Connecticut Air Quality Control Region which includes 17 counties in the three states. In dealing with interstate air pollution problems, the Commission cooperates with the New Jersey Department of Environmental Protection, the New York State Department of Environmental Conservation, the National Air Pollution Control Administration, the Connecticut State Department of Health, the New York City Air Resources Department and many active citizens who report their observations.

In 1970, the Commission's 24-hour-a-day answering service received complaints from many citizens in the area regarding odor and other air pollution problems. These were investigated either independently by the Commission or jointly with other agencies. Action to curtail offending emissions was then taken by the control agency with local jurisdiction. A total of 470 complaints were acted upon during 1970 by the Commission.

As an air pollution coordinating agency, the Commission receives daily ambient air quality data from the New York monitoring stations located at 121st Street and at Cooper Union and from the New Jersey Station in Newark. This data is subsequently relayed to all participating agencies including the National Air Pollution Control Administration.

The Commission maintains a station to continuously measure wind speed and wind direction at the foot of Victory Boulevard near the Arthur Kill on Staten Island which telemeters data to the Commission office at 10 Columbus Circle in New York City.

This continuous wind speed and direction recording instrument has proved of such use in helping to locate sources of odors and other emissions that two additional ones have been ordered for installation in other areas. One will be located at Port Chester on the New York-Connecticut state line and the other in Port Richmond, on the north shore of Staten Island. Each of these stations will also telemeter the information to the Commission office.

To aid primary control agencies in the solution of air quality problems which are interstate in nature, the Commission maintains two mobile vans capable of measuring sulphur dioxide, smoke shade and carbon monoxide. These vans are used to make on-the-spot measurements of pollution between states and to check on suspected offenders.

REGIONAL AIR POLLUTION WARNING SYSTEM

As coordinator of the air pollution control agencies during periods of high air pollution potential, the Commission maintains close ties with the Air Monitoring Network of New Jersey, the Air Quality Division of the New York State Department of Environmental Conservation, the Health Department of Connecticut, the National Weather Service in New York City, the Air Resources Department of New York City, and the National Air Pollution Control Administration. At times when the Weather Service issues a high air pollution potential advisory, the Commission collects ambient air quality data from each of the participating agencies and relays this information and current meteorological information to all the other agencies. The parameters of air quality with which the Commission monitors are carbon monoxide, sulphur dioxide and suspended particulates. In 1970, there were two periods of high air pollution potential. None of these progressed to the level of alert.

SUMMARY OF AIR POLLUTION EPISODES

June 8-10, 1970

At 12 Noon, the Commission was informed by the National Weather Service that a high air pollution potential would exist in the metropolitan area for at least 36 hours. This advisory was terminated at 12 Noon on June 10, 1970, due to improved ventilation. During this period, pollutant concentrations did not reach the alert level.

October 7-11, 1970

At 12 Noon, the National Weather Service transmitted a high pressure advisory to the Commission which was expected to last for at least 36 hours. This information was relayed to the States and to New York City. The advisory was extended to October 8, then to October 9, and was finally terminated on October 11 at 12 Noon.

In the "Forecast" period, the pollutants level did not reach sufficient intensity to necessitate a call for an air pollution alert.

MODIFICATIONS TO PRESENT SYSTEM

With the passage of time, it has been recognized that the criteria to call an alert needed to be updated. In recognition of this, in the latter part of this year the Commission sponsored a workshop of government officials to evaluate the criteria and levels of parameters used in the System. Present at this conference, in addition to personnel from the Commission, were representatives from the States of New York, New Jersey, Connecticut, Pennsylvania and Delaware, the Cities of New York and Philadelphia, the National Air Pollution Control Administration, and the National Weather Service. The report on this workshop has not been finished and final results will not be available until early 1971. The concensus reached was that the present parameters of sulphur dioxide, particulates and carbon monoxide needed to be tightened-up and the additional parameter of oxidents should be added to the criteria. As soon as the report has been completed, it will be distributed.

IV. LEGAL ACTIVITIES

LEGAL ACTIVITIES

During 1970, the strengthening of the program authority of the Interstate Sanitation Commission provided the most notable sources of the work of Counsel. There were major developments affecting both the air and water pollution programs.

On April 16, 1970, the Commission was designated as the coordinating agency for the New York Air Quality Control Region under the Federal Air Quality Act. Counsel advised the Commission during the development of this agreement, the text of which is appended to the end of this section.

An early activity following this designation has been the drafting of a model statute dealing with breakdowns and malfunctions of equipment that may result in the discharge of abnormal amounts of contaminants into the atmosphere. This work was done in cooperation with a committee from the appropriate agencies of the three states and New York City. The text of this statute as recommended for consideration by affected jurisdiction is appended to the end of this section.*

It is not necessarily intended that the three states and such local governments as have appropriate jurisdiction and authority should enact the model statute by legislation. Where the underlying statutory authority already exists, it may be that the substance of the text could be turned into an administrative regulation. Undoubtedly, each jurisdiction will consider the question of form in accordance with its own convenience and needs. The desired goal is to achieve coverage of the subjects dealt with in the model and to do so in reasonably similar ways throughout the Air Quality Control Region.

1970 also has seen the completion of action on amendment of the Tri-State Compact by adding new provisions relating to the Commission's standards-making

*The Commission approved the text of the model statute at its meeting of December 2, 1970 and recommends its consideration by the state and local jurisdictions of the Region.

procedures for water quality. New Jersey enacted the Amendment; New York and Connecticut had already done so. Hitherto, these standards were expressly set forth in the Compact. Prescribed classes of waters of the Interstate Sanitation District (Class A for recreational water and Class B for nonrecreational waters) were also set forth. The Commission was empowered to determine which of the District waters belonged to each class.

These older provisions are undisturbed by the Compact Amendment and may still be enforced. In addition, however, the Commission may now make supplemental or substitute standards, both for effluents and receiving waters. The Commission is now engaged in preparatory work looking toward implementation of the new authority.

As in the past years, much of Counsel's work has been of a continuing character in giving advice to the Commission and its staff and participating in meetings and negotiations with public officials and private persons with whom the Commission has business. No attempt is made here to catalog these activities. While they are important to the proper functioning of the Commission, they are not of the kind that lend themselves to recitation in an annual report.

Agreement to Designate the
Interstate Sanitation Commission as the
Coordinating Agency for the
New Jersey-New York-Connecticut
Air Quality Control Region

1. Whereas, Congress has found that the prevention and control of air pollution at its source is the primary responsibility of States and local governments; and (Sec. 101 (a) (3))*

2. Whereas, it is the intent of Congress for the Secretary to (a) encourage cooperative activities by the States and local governments (b) encourage the enactment, so far as is practicable, of uniform State and local laws and (c) encourage the making of agreements between States for prevention and control of air pollution; and (Sec. 102 (a))*

3. Whereas, the consent of Congress is given to two or more States to negotiate and enter into agreements for cooperative effort and mutual assistance for the prevention and control of air pollution and the enforcement of their respective laws relating thereto; and (Sec. 102 (c) (1))*

4. Whereas, the Secretary of HEW has established the New Jersey-New York-Connecticut Air Quality Control Region under the terms of PL 90-148; and (Sec. 107 (a)(2))*

5. Whereas, Criteria and Control Technology for Air Contaminants are being developed and issued to the States; and (Sec. 107 (b)(1))*

6. Whereas, the Governor of each State must file with the Secretary of HEW within 90 days of the receipt of the criteria and control technology documents, a letter of intent that his State will adopt air quality standards applicable to any designated air quality control region or portions thereof within such State; and (Sec. 108 (c)(1))*

7. Whereas, each State must, after hearing, adopt within the next following 180 days air quality standards applicable to the portion of the State lying within the air quality control region; and, within 180 days thereafter adopt a plan for the implementation, maintenance

and enforcement of such standards of air quality adopted; and (Sec. 108 (c)(1))*

8. Whereas, effective air pollution control programs already are functioning in the Health Departments under the direction of the State Commissioner of Health in each State involved in the New Jersey-New York-Connecticut Air Quality Region; and

9. Whereas, each involved State agency has, by statute, standard setting and regulatory authority; and

10. Whereas, there is an immediate need to expeditiously implement the provisions of the Federal Air Quality Act and to carry out the intent of Congress in the New Jersey-New York-Connecticut Air Quality Control Region; and

11. Whereas, it is essential for the States of New Jersey, New York and Connecticut through a single agency to mutually assist each other in a cooperative effort to insure compatibility of standards and administrative coordination in enforcement within the Air Quality Control Region for the prevention and control of air pollution; and

12. Whereas, the Interstate Sanitation Commission is an existing agency already empowered by the respective States to engage in activities with respect to interstate air pollution problems among the States.

STATUTES:
New York : Chap. 476, 1299-1, P.L. 1960
New Jersey : Chap. 105, P.L. 1961
Connecticut: Sec. 25-66A (A) P.L. 1969

Therefore, the States of New Jersey, New York and Connecticut agree that:

1. The Interstate Sanitation Commission is designated as the coordinating and planning agency for the New Jersey-New York-Connecticut Air Quality Control Region.

2. The Interstate Sanitation Commission shall:

   a. Assist in the development of compatible

standards for air quality within the Air Quality Control Region.

b. Coordinate plans and strategies for the prevention and control of air pollution within the Air Quality Control Region.

c. Render technical assistance to the States in planning controls for the Air Quality Control Region.

d. Collect, receive and disseminate data and information needed to develop standards and prevention and control plans.

e. Plan and coordinate activities related to air pollution episodes.

f. Do such other things as may be possible and necessary for the development and the execution of an effective comprehensive air pollution prevention and abatement program within the Air Quality Control Region.

(signed) James R. Cowan, M.D.
Commissioner of Health
State of New Jersey

(signed) Hollis S. Ingraham, M.D.
Commissioner of Health
State of New York

(signed) Franklin M. Foote, M.D.
Commissioner of Health
State of Connecticut

*References to Sections of PL 90-148

An Act requiring reporting of malfunction or breakdown of equipment, facilities, or control apparatus, relating to emissions; requiring permission for continued operation of air contaminant sources under conditions or malfunction or breakdown, and for related purposes.

Section 1.

Any person responsible for the operation of a source of air contamination shall immediately report to the [Air Pollution Control Agency] any emission of an air contaminant or contaminants due to the malfunction, breakdown or removal from service of equipment, facilities, or control apparatus. Such report shall be by telephone or such other means of communication as will afford the [Air Pollution Control Agency] actual notice of the emission and its attendant circumstances. The report shall be confirmed in such manner as will be sufficient to give the [Air Pollution Control Agency] a formal written record thereof. The confirmation shall be in such form as the [Air Pollution Control Agency] may prescribe.

Section 2.

The report required by Section 1 of this Act shall be sufficient to give the [Air Pollution Control Agency] actual notice of and as full information as may be reasonably available or ascertainable concerning all of the following:

1. The occurrence of the emission.

2. The nature and amount of the contaminant or contaminants involved.

3. The extent of the remedial measures necessary and the length of time required for their accomplishment.

4. Whether the air contaminant source continues in operation or is shut down pending completion of the repairs

or other remedial measures.

5. [Whether the occurrence is covered by a contingency plan on file with the [Air Pollution Control Agency] and, if so, what action is being taken thereon.]

Section 3.

The person responsible for the operation of an air contaminant source shall not continue it in operation during any malfunction, breakdown or shutdown of equipment, facilities, or control apparatus affecting the quality or quantity of emissions, except with the express permission of the [Air Pollution Control Agency]. Such permission shall be given only as may be necessary to protect the public health and safety.

Section 4.

The [Air Pollution Control Agency] may require the operator of an air contaminant source to file a contingency plan. Such plan shall set forth the measures to be taken in meeting malfunctions, breakdowns or other operational emergencies. Contingency plans may be required only for installations, facilities or equipment that, in the judgement of the [Air Pollution Control Agency] are of such a size or character as to make appropriate the specific preparation of a contingency plan. The [Air Pollution Control Agency] may make the filing of a satisfactory contingency plan a condition precedent to the issuance, amendment or renewal of an [operating certificate].

Section 5.

This Act shall not apply to air contaminant sources connected solely with equipment or facilities for the heating of dwelling units or the incineration on the premises of solid wastes from dwelling units.

Section 6.

Violation of this Act or of any rule or regulation made

by the [Air Pollution Control Agency] in implementation thereof shall subject the violator to the suspension or revocation of his [operating certificate] covering the apparatus, equipment or facility involved and, in addition, to a civil penalty of [$] for each violation. Each day on which the violation occurs or continues shall make the violator subject to a separate penalty. The imposition of a penalty or the suspension or revocation of a certificate pursuant to this Act shall not prevent the [Air Pollution Control Agency] from taking action to abate pollution pursuant to [cite applicable provisions of law] .

Section 7.

Any information required to be reported pursuant to this Act shall not be used as the basis for a criminal prosecution of the person required to make the report.

A P P E N D I X A

SEWAGE TREATMENT PLANTS

Discharging into the

INTERSTATE SANITATION DISTRICT

SEWAGE TREATMENT PLANTS
Dicharging into the
INTERSTATE SANITATION DISTRICT WATERS
1970

Plant	Receiving Water Class	Date of Const.	Flow MGD Average	Flow MGD Design	Type of Treatment	Estimated Population Served
CONNECTICUT						
Fairfield County						
Bridgeport - East Side	A	1950+	10.6	14.0	Primary	47,000
- West Side	A	1951+	25.9	18.0	Primary	109,000
Darien	A	1956+	1.1	1.2	Primary	6,500
Fairfield	A	1967+	4.0	6.0	Secondary	30,000
Greenwich - Central	A	1964+	7.0	8.5	Secondary	42,000
Norwalk	A	1953+	9.0	30.0	Primary	55,000
Stamford	A	1943+	10.4	10.0	Primary	60,000
Stratford	A	1953+	7.8	5.0	Primary	40,000
Westport	A	1960	1.0	0.6	Secondary	5,000
New Haven County						
Milford - Gulf Pond	A	1960	2.4	2.5	Secondary	6,000
- Harbor	A	1937	0.6	0.5	Secondary	4,000
- Town Meadows	A	1954	1.6	1.2	Secondary	10,000
New Haven - Boulevard	A	1959+	13.4	13.0	Primary	63,100
- East Shore	A	1953	6.8	12.5	Primary	35,000
- East Street	A	1966+	15.4	22.5	Primary	67,100
West Haven	A	1969+	5.7	23.0	Primary	40,000
NEW JERSEY						
Bergen County						
Edgewater	B	1958+	2.1	4.0	Primary	5,000
Hudson County						
Bayonne	B	1954	8.0	20.0	Primary	73,000
Hoboken	B	1958	13.0	20.0	Primary	70,000
Jersey City - East Side	B	1967+	32.3	45.4	Primary	160,000
- West Side	B	1967+	17.4	36.0	Primary	110,000
Joint Outlet (West New York)	B	1953	6.2	7.5	Primary	50,000
Kearny	B	1955	2.8	4.0	Primary	30,000
North Bergen - Woodcliff	B	1962	1.5	4.4	Primary	14,741
Middlesex County						
Carteret	B	1953	2.9	3.0	Primary	21,000
Madison Township Sewerage Auth. - Laurence Harbor	A	1963+	0.5	1.4	Primary	8,000
Middlesex County Sewerage Auth.	A	1965+	66.6	78.0	Primary	500,000
Perth Amboy	A	1934	5.8	10.0	Primary	41,000
Rahway Valley Sewerage Authority	B	1937	30.3	35.0	Primary	68,000
Sayreville - Melrose	A	1949	0.03	0.1	Primary	1,000
- Morgan	A	1951	0.15	0.3	Primary	2,000
South Amboy	A	1940	0.8	1.0	Primary	9,000
Woodbridge	B	1954	5.0	10.0	Primary	25,000
Monmouth County						
Atlantic Highlands	A	1928	0.3	0.6	Primary	4,100
Highlands	A	1928	0.4	1.2	Primary	3,500
Keansburg	A	1964+	1.8	5.0	Primary	6,900
Keyport	A	1962+	0.7	2.9	Primary	6,400
Union County						
Elizabeth Joint Meeting	B	1958+	62.2	100.00	Primary	465,000
Linden-Roselle	B	1952	13.8	12.5	Primary	66,000
Essex County						
**Passaic Valley	B	1937+	250.0	-	Primary	2,899,000
NEW YORK						
Nassau County						
Belgrave Sewer District	A	1965+	1.4	2.0	Secondary	15,000
Cedarhurst	A	1934+	0.9	1.5	Secondary	7,000
Freeport	A	1960+	4.0	6.0	Secondary	40,000

SEWAGE TREATMENT PLANTS
Discharging into the
INTERSTATE SANITATION DISTRICT WATERS
1970

Plant	Receiving Water Class	Date of Const.	Flow MGD Average	Flow MGD Design	Type of Treatment	Estimated Population Served
NEW YORK (continued)						
Nassau County (continued)						
Glen Cove - Morgan Island Estates	A	1948	-	-	Septic Tank	-
- Morris Avenue	A	1965+	4.8	2.7	Secondary	25,000
Great Neck Sewer District	A	1962+	2.5	2.7	Secondary	14,000
Great Neck Village	A	1948+	1.0	1.5	Secondary	9,000
Jones Beach	A	1951	Seasonal	1.0	Secondary	Seasonal
Lawrence	A	1966+	0.7	1.5	Secondary	6,000
Long Beach	A	1953+	6.4	6.6	Secondary	29,000
*Long Island Lighting Company (Glenwood Landing)	A	1929	-	-	3-Septic Tanks	Industrial
Nassau County Sewer District #1	A	1961	1.5	2.5	Secondary	9,000
Nassau County Sewer District #2	A	1962+	63.9	60.0	Secondary	600,000
Oyster Bay Sewer District	A	1965+	1.2	1.2	Secondary	6,000
Port Washington Sewer District	A	1952+	2.6	3.0	Secondary	25,000
*Quantitative Biology Laboratory	A	1965	-	0.008	Secondary	40
Roslyn	A	1950+	0.4	0.45	Secondary	3,000
West Long Beach Sewer District (Atlantic Beach)	A	1960+	0.6	1.5	Secondary	Seasonal
NEW YORK CITY						
Bronx County						
Hart-City Island	A	1942	1.0	1.5	Primary	5,000
Hunts Point	B	1965+	149.1	150.0	Secondary	770,000
Orchard Beach	A	1945+	Seasonal	0.1	Primary	Seasonal
Kings County (Brooklyn)						
Coney Island	A	1965+	89.2	110.0	Secondary	535,000
Newtown Creek	B	1967	161.3	310.0	Intermediate	2,500,000
Owls Head	B	1952	100.3	160.0	Intermediate	750,000
26th Ward	A	1951+	63.8	60.0	Secondary	385,000
New York County (Manhattan)						
Dyckman Street	A	1917	5.0	7.5	Screening	39,000
Wards Island	B	1948+	254.7	220.0	Secondary	1,470,000
Queens County						
Bowery Bay	B	1958+	115.6	120.0	Secondary	1,000,000
Jamaica	A	1965+	89.2	100.0	Secondary	415,000
Rockaway	A	1961+	19.9	30.0	Secondary	90,000
Tallmans Island	A	1964+	61.3	60.0	Secondary	251,000
Richmond County (Staten Island)						
*Daytop Village	A	-	-	-	Septic Tank	-
*Elmwood Homes	A	-	-	-	Extended Aeration	-
*Forest Hill Park	A	-	-	-	Extended Aeration	-
*Mount Loretto Home - Plant #1	A	-	-	-	Septic Tank	-
- Plant #2	A	-	-	-	Septic Tank	-
Oakwood Beach	A	1956	15.0	15.0	Secondary	85,000
Port Richmond	B	1953	11.5	10.0	Primary	60,000
*Public School #7	A	1965	-	-	Extended Aeration	2,200
*Richmond Memorial Hospital	A	1936	-	-	Septic Tank	-
*Saint Joseph's School	A	1965	-	-	Extended Aeration	910
Rockland County						
*Continental Can Company	A	1954	2.64	3.0	Primary	Industrial
Haverstraw	A	1940	0.6	1.0	Primary	6,000
*Jewish Convalescent Home - Grandview	A	-	-	-	Septic Tank	-
*Letchworth Village (Thiells)	A	1935+	0.4	0.8	Imhoff Tank	4,500
*New York State Rehabilitation Hospital (West Haverstraw)	A	1933	0.06	0.2	Imhoff Tank	300
Nyack	A	1940	1.1	1.0	Primary	6,000

SEWAGE TREATMENT PLANTS
Discharging into the
INTERSTATE SANITATION DISTRICT WATERS
1970

Plant	Receiving Water Class	Date of Const.	Flow MGD Average	Flow MGD Design	Type of Treatment	Estimated Population Served
NEW YORK (continued)						
Rockland County (continued)						
Orange & Rockland Utilities	A	-	-	-	Septic Tank	Industrial
Orangetown Sewer District	A	1967+	5.6	8.5	Secondary	6,100
Rockland County Sewerage Authority	A	1968	8.6	10.0	Secondary	-
Palisades Interstate Park (Bear Mountain Plant)	A	1951+	0.09	0.3	Secondary	Seasonal
Tallman Mt. Plant	A	1969	Seasonal	0.024	Package Primary	Seasonal
**South Nyack	A	1941	0.3	0.6	Imhoff Tank	3,100
*Stony Point District #1	A	1969	0.4	1.0	Secondary	1,000
Upper Nyack	A	1953	0.07	0.1	Imhoff Tank	1,500
**West Haverstraw	A	1936	0.8	0.4	Imhoff Tank	5,500
Suffolk County						
Huntington Sewer District	A	1957+	1.4	2.0	Secondary	34,700
*Kings Park State Hospital (Smithtown)	A	1964+	0.8	2.0	Secondary	9,500
*Long Island Lighting Company (Port Jefferson)	A	-	-	-	Septic Tank	-
Northport	A	1949+	0.18	0.5	Imhoff Tank	6,000
Port Jefferson Sewer District	A	1963+	1.2	1.5	Primary	2,000
Westchester County						
*American Yacht Club (Rye)	A	-	Seasonal	-	2-Septic Tanks	Seasonal
Briarcliff Manor - River Road	A	1951+	-	-	Septic Tank	200
- Scarborough Dock	A	1926+	-	-	Septic Tank	1,500
Buchanan	A	1962	0.22	0.55	Secondary	-
Croton-on-Hudson	A	1951	0.9	0.75	Primary	7,000
Irvington	A	1950	0.7	1.0	Primary	5,500
Metropolitan Petroleum Corp.	A	1954	-	-	Septic Tank	-
*Penn C.R.R. Harmon Shop (Croton)	A	1941	0.14	0.7	Primary	Industrial
North Tarrytown	A	1940+	1.2	1.7	Primary	8,800
Ossining - Liberty Street	A	1939	0.4	1.0	Imhoff Tank	3,000
- Water Street	A	1940	2.0	5.0	Primary	16,000
Peekskill	A	1953	0.9	4.0	Primary	19,000
Port Chester	A	1965+	4.7	6.0	Primary	27,000
*Shell Union Oil Co. (Mount Vernon)	A	1949	-	-	Septic Tank	Industrial
*Shenerock Shore Club (Rye)	A	-	Seasonal	-	Septic Tank	Seasonal
*Sing Sing State Prison (Ossining)	A	1950+	0.2	0.6	Primary	2,000
Springvale	A	1959	0.08	0.1	Secondary	1,000
Tarrytown	A	1940+	1.3	1.5	Primary	11,100
Westchester County D.P.W.						
Blind Brook (Rye)	A	1963+	2.1	5.0	Primary	23,000
Mamaroneck	A	1965+	18.0	70.0	Primary	95,000
New Rochelle	A	1955+	12.0	15.0	Primary	75,000
Yonkers Joint Meeting	A	1960+	67.5	60.9	Primary	475,000
FEDERAL & MILITARY						
Camp Smith	A	-	-	-	Secondary	-
Earle Naval Ammunition	A	-	-	-	Secondary	-
FDR Veterans Administration Hospital	A	-	-	-	Secondary	-
Military Ocean Terminal	B	-	-	-	Imhoff Tank	-

\+ Year of major additions of reconstruction

* Private, institutional and industrial sewage treatment plants

** Estimated Flows

A P P E N D I X B

SUMMARY OF RAW AND TREATED SEWAGE DISCHARGING INTO THE INTERSTATE SANITATION DISTRICT WATERS

SUMMARY OF RAW AND TREATED SEWAGE DISCHARGING INTO THE INTERSTATE SANITATION DISTRICT WATERS

	Raw	Screening, Imhoff & Septic Tank	Primary	Secondary	Total Treated
1936	1066	126	149	2	277
1949	1059	173	232	301	766
1954	757	77	250	577	904
1959	592	89	592	737	1418
1964	592	24	614	885	1523
1970	451*	7*	760*	1245	2012

NOTE: - All flows are million gallons per day.

*Under orders to provide secondary treatment.