# INTERSTATE SANITATION COMMISSION

*A TRI-STATE ENVIRONMENTAL AGENCY*

1983

ANNUAL REPORT

NEW YORK NEW JERSEY CONNECTICUT

# 1 9 8 3

# 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

*A TRI-STATE ENVIRONMENTAL AGENCY*

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

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January 24, 1984

To His Excellency, Mario M. Cuomo
His Excellency, Thomas H. Kean
His Excellency, William A. O'Neill
and the Legislatures of the States of New York,
New Jersey, and Connecticut

Your Excellencies:

The Interstate Sanitation Commission respectfully submits its report for the year 1983.

The members of the Commission are confident that with the continued support of the Governors and the members of the Legislatures, the Commission will maintain active and effective water and air pollution abatement programs.

Respectfully submitted,

Natale Colosi
For the State of New York — Chairman

D B Clark
For the State of Connecticut — Vice Chairman

Samuel P. Owen
For the State of New Jersey — Vice Chairman

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General Counsel

# INTERSTATE SANITATION COMMISSION

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RETIREMENT OF THOMAS R. GLENN

DIRECTOR AND CHIEF ENGINEER

On March 31, 1983 Thomas R. Glenn retired from the position of Director and Chief Engineer of the Commission. He joined the Commission on September 6, 1956 and became Director and Chief Engineer on June 20, 1958.

Upon his retirement, the Commission adopted the following resolution:

INTERSTATE SANITATION COMMISSION

To Thomas R. Glenn in grateful appreciation for more than 25 years of service to the Interstate Sanitation Commission. As Director and Chief Engineer he guided the work of Regional Air and Water Quality. His contribution has benefited millions of people by improving the environment in which they live.

April 1, 1983

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 created by a compact between the States of New York, New Jersey, and Connecticut for the abatement of existing water pollution and the control of future water pollution in tidal waters of the New York Metropolitan Area. In 1962, air pollution was added to the scope of the Commission's activities, and in 1970 the Commission was designated as the official planning and coordinating agency for the New Jersey-New York-Connecticut Air Quality Control Region.

This report, which is prepared each year, provides a record of the water and air pollution activities of the Interstate Sanitation Commission. It focuses on technical assistance, planning, laboratory analyses, monitoring, and coordination activities provided by the Commission which lead to the resolution or amelioration of environmental problems within the Commmission's water and air pollution areas of jurisdiction.

## WATER POLLUTION

The Commission's activities in water pollution abatement provided assistance in the coordination of approaches to regional pollution problems. Priorities in water pollution included: evaluation of applications for lesser treatment, minimization of the effects of combined sewers, pretreatment of industrial wastes, ocean disposal, compliance monitoring, disinfection of shellfish waters, and enforcement.

It is estimated that almost $2.9 billion has been allocated by various municipalities within the District. These monies are for planning and construction projects which are well underway to provide a higher degree of quality for discharged wastewater.

Twenty-five Publicly Owned Treatment Works (POTWs) within the District applied for waivers to discharge effluents at less than secondary treatment under the provisions of Section 301(h) of the Clean Water Act. Based on dissolved oxygen criteria and other information, none of the applications received the concurrence of the Commission and each was subsequently tentatively denied by the U.S. Environmental Protection Agency. Each applicant has the opportunity to reapply within one year.

The Commission continued to monitor waste discharges from public and private treatment plants to check compliance with N/SPDES permits and to sample the waters of the District. A special coliform sampling program to assist the State of New Jersey in assessing their disinfection policy continued and the results are contained later in this report.

This annual report contains values for temperature, conductivity, dissolved oxygen, and pH for remote automatic water quality monitoring stations. The Commission was forced to discontinue operation of these monitors during the year due to budgetary restrictions.

The laboratory continued to administer the practical examination to applicants for New York State Grades II and III Sewage Treatment Plant Operator certifications.

## AIR POLLUTION

The Commission continued its role as coordinator of the High Air Pollution Alert and Warning System in the New Jersey-New York-Connecticut Air Quality Control Region. In June, based on meteorological conditions reported by the National Weather Service, the Commission issued an Air Stagnation Advisory which lasted for one week.

In regard to sulfur dioxide emissions, the Commission worked closely with its member states. Daily air quality and meteorological data received at the ISC office were transmitted to all concerned agencies.

The results of a preliminary ambient benzene sampling study in Brooklyn, New York conducted by the Commission are detailed in this report.

During the 12 months from October 1982 through September 1983, the Commission received over 1150 air pollution complaints concerning odors. The majority of the calls came from Staten Island residents. In order to respond in a timely and effective manner, the Commission maintained its field office on Staten Island. However, due to budgetary constraints the Commission was forced to reduce its air pollution staff and decrease coverage at the field office.

# II. WATER POLLUTION

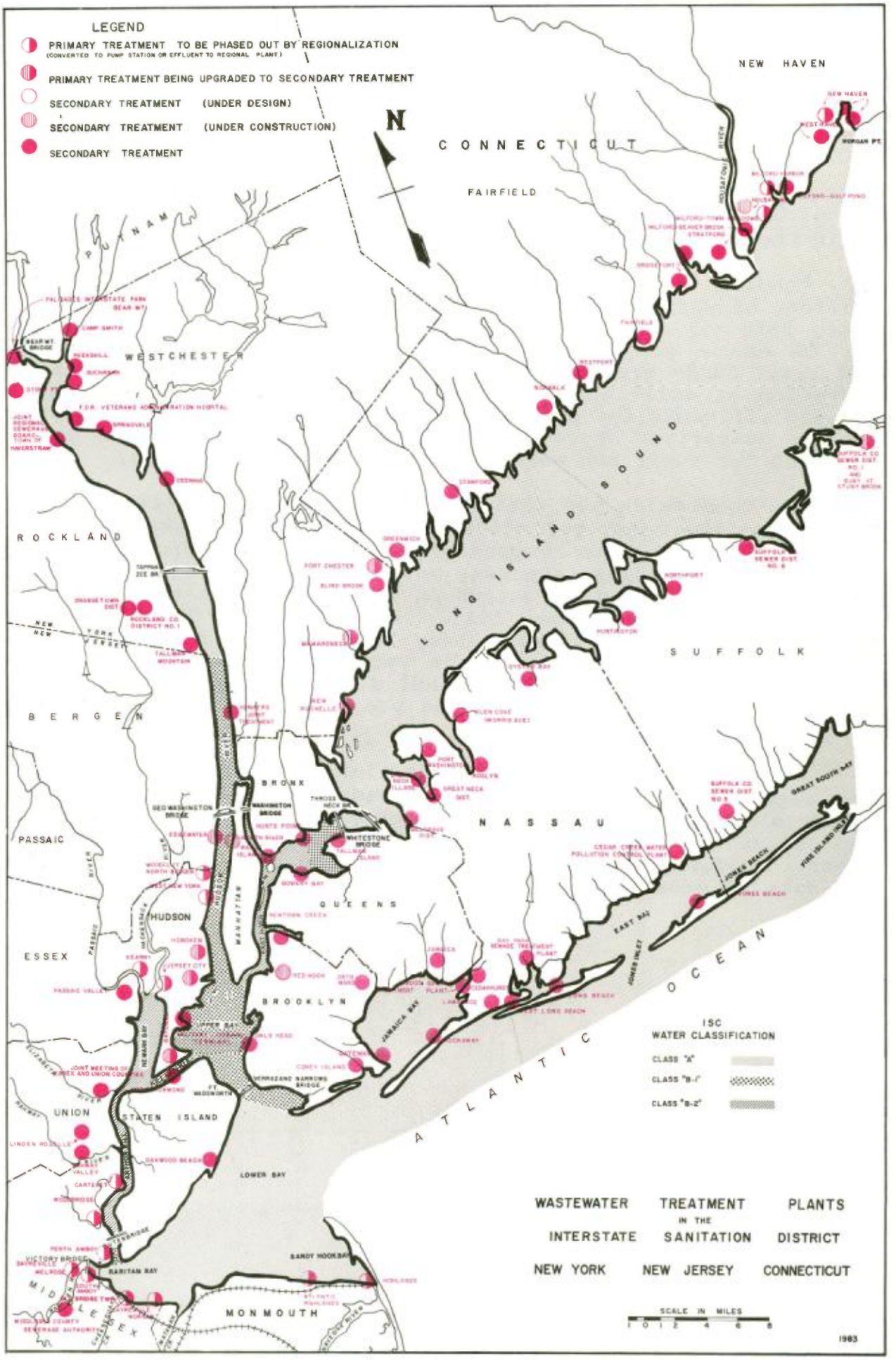
## GENERAL

Within the Interstate Sanitation District, there were a total of 205 water pollution control projects completed, continued, or in the planning stage.

Funding for these projects amounted to approximately $2.9 billion, of which $113 million was for 52 projects completed this year, $876 million for 84 projects in progress, and $1.9 billion for 69 future projects. These expenditures of federal, state, and local funds are for new wastewater systems and expansion and upgrading of existing facilities in order to provide adequately treated effluents for discharge into the District waterways. The funding summarized above does not include large sums spent by industries for their own water pollution control programs.

The Commission has obtained the technical and fiscal information for the water pollution control projects described in the following section from responsible persons within state and local governmental agencies, sewerage authorities, and consulting engineering firms. The information in this section is that which was available through October 1983. Many Publicly Owned Treatment Works in New York and New Jersey have applied for waivers for less than secondary treatment in accordance with Section 301(h) of the Clean Water Act. The final decision regarding these applications may affect some of the projects reported in this section.

A map of the Interstate Sanitation District, on the following page, shows the locations of wastewater treatment plants which discharge into District waterways, the type of treatment and status of each plant, and the Commission's water classifications. Information pertaining to flows, tributary population, and date of construction for these plants is contained in Appendix A.


LEGEND
PRIMARY TREATMENT TO BE PHASED OUT BY REGIONALIZATION
(CONVERTED TO PUMP STATION OR EFFLUENT TO REGIONAL PLANT)
PRIMARY TREATMENT BEING UPGRADED TO SECONDARY TREATMENT
SECONDARY TREATMENT (UNDER DESIGN)
SECONDARY TREATMENT (UNDER CONSTRUCTION)
SECONDARY TREATMENT
N
CONNECTICUT
NEW HAVEN
FAIRFIELD
WESTCHESTER
ROCKLAND
BERGEN
PASSAIC
HUDSON
ESSEX
UNION
BRONX
QUEENS
BROOKLYN
STATEN ISLAND
NASSAU
SUFFOLK
MONMOUTH
LONG ISLAND SOUND
ATLANTIC OCEAN
HUDSON RIVER
RARITAN BAY
LOWER BAY
ISC
WATER CLASSIFICATION
CLASS "A"
CLASS "B-1"
CLASS "B-2"
WASTEWATER TREATMENT PLANTS
IN THE
INTERSTATE SANITATION DISTRICT
NEW YORK NEW JERSEY CONNECTICUT
SCALE IN MILES
0 1 2 4 6 8
1983

## CONNECTICUT WATER POLLUTION CONTROL PLANTS

### Bridgeport - East Side and West Side Plants, Connecticut (Fairfield County)

#### Projects in Progress

A $361,000 SSES is 80% complete. The study is concentrating on tide gate infiltration and inflow.

Work is continuing on the lateral installation to the Trumbull interceptor. This $20 million project is 55% complete.

The $4 million Northwest interceptor is 95% complete.

General modifications to both plants are in progress. Renovations at the East and West Side plants will cost approximately $1 million and $2 million, respectively.

The 201 Step I study is continuing on schedule.

### Fairfield, Connecticut (Fairfield County)

#### Completed Projects

Rebuilding of one of the primary settling tanks was completed at a cost of $40,000. An additional $35,000 was spent on the installation of new chlorinators with piping and metering equipment.

A new pump station on Pine Creek Road (Beach Area) has been built.

#### Projects in Progress

Replacement of a mechanical aerator with one of a new design is under way.

Design work for a new pump station on Toll House Lane (north Fairfield) is under way and expected to be completed in 1984.

#### Future Project

Modifications to this secondary treatment facility will include rebuilding of a secondary tank ($45,000) and installation of a new return activated sludge pump ($9,500).

Greenwich, Connecticut (Fairfield County)

Completed Projects

The Phase I 201 Facilities Design study was completed at a cost of $135,000. Phase IIA was completed at a cost of $535,000.

Project in Progress

The I/I Phase IIB 201 study is under way. Final costs have been approximated at $300,000.

Future Project

The North Mianus sewer project is ready for construction. The $6.5 million project is awaiting State and federal funding availability.

Milford - Beaver Brook, Connecticut (New Haven County)

Project in Progress

Construction has begun recently on a $500,000 project focusing on upgrading of plant facilities. The new items that are to be installed include chlorination units, a belt filter press, an emergency generator building, and additional sludge handling piping.

Milford - Gulf Pond, Connecticut (New Haven County)

Refer to description of projects at the Milford - Housatonic Wastewater Treatment Facility.

Milford - Harbor, Connecticut (New Haven County)

Refer to description of projects at the Milford - Housatonic Wastewater Treatment Facility.

Milford - Housatonic Wastewater Treatment Facility, Connecticut (New Haven County)

Future Projects

An estimated cost of $16.8 million has been made for the construction of this secondary activated sludge facility. Ground breaking was expected during the fall of 1983; a target date to be on-line has been set for the 1985-1986 winter season.

A reestimate of $20 million has been made for construction of a collection system. These funds will provide for the installation of 19,000 feet of interceptor lines and 38,000 feet of force main, the rehabilitation of four existing pump stations, and the building of three new pump stations. A start-up date has been set for spring 1984.

This facility has been designed to replace treatment plants at the Gulf Pond, Harbor and Town Meadows sites.

Milford - Town Meadows, Connecticut (New Haven County)

Refer to description of projects at the Milford - Housatonic Wastewater Treatment Facility.

New Haven - Boulevard, Connecticut (New Haven County)

Completed Projects

An I/I and a value engineering study have been completed for both the Boulevard and East Street Plants. These studies recommend modifications for conversion to pump station status.

Future Project

The Boulevard plant will be converted to a pump station. New units to be added to the station are bar screens and an aerated grit chamber. A force main will be installed in order to divert flows to the East Shore plant. An estimate of $20 million has been made for this work.

New Haven - East Shore, Connecticut (New Haven County)

Future Project

Modifications are to be made at this facility in order to handle the eventual loadings from the Boulevard and East Street plants. The project will include work on the primary sludge handling and disposal units as well as the force main. An estimate ranging from $6 to $8 million has been assessed for the entire job.

New Haven - East Street, Connecticut (New Haven County)

Completed Projects

Refer to the New Haven - Boulevard and New Haven - East Shore write-ups.

Project in Progress

Ground was broken this past summer for pump station conversion construction. The new pump station will be equipped with four 25 MGD pumps, bar screens, and an aerated grit chamber. Included in the $20 million cost is a new force main which will divert flows to the East Shore plant.

Norwalk, Connecticut (Fairfield County)

Completed Projects

A Step I 201 Facilities Design study has been completed and a report has been issued. The final cost of this study was $348,000.

A $6 million, 75 MGD supplemental treatment project is complete. This project included new bar screens, fine screens, and degritters.

Projects in Progress

Work on the $2 million sludge handling project is 90% - 95% complete. The installation of new sludge presses and a sludge reactor retrofit will ensure efficient sludge burning.

A combined sewer separation program is 25% complete. The final expenditure is expected to be $6 million which includes $4.5 million from the U.S. EPA Combined Sewer Separation Project grants and $1.5 million from City Sewer Project grants.

Replacement and/or upgrading of the main lift pumps is currently being studied. Approximately $300,000 has been allocated for this project.

Stamford, Connecticut (Fairfield County)

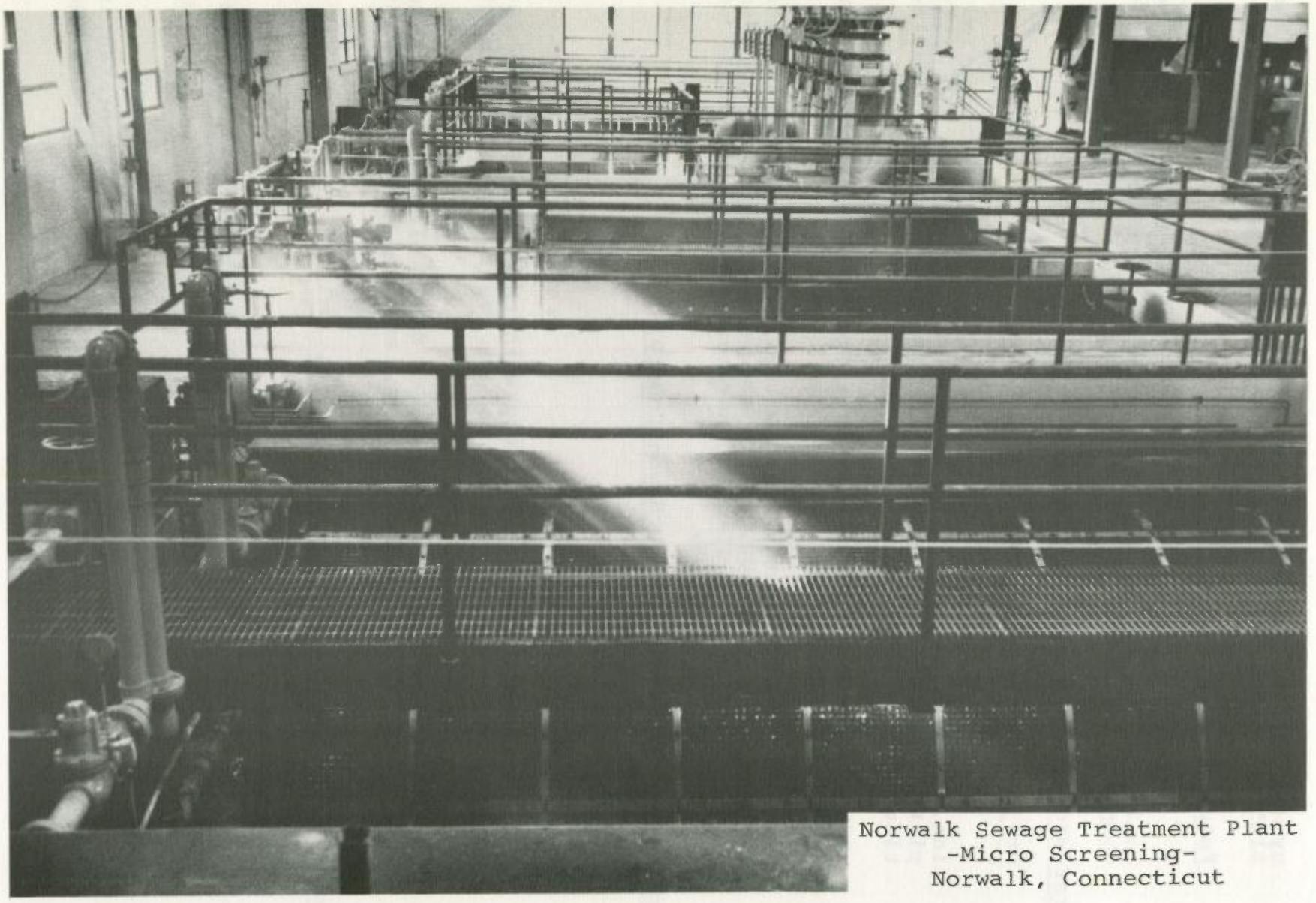
Completed Projects

Modifications to the chlorine handling facility are 100% complete and cost $102,000.

Stamford's three pump stations have been completely renovated at a cost of $750,000. In addition, design work on a fourth pump station (Greenwich Avenue) is complete.

Project in Progress

A research grant for the study of a distributed baffle



Norwalk Sewage Treatment Plant
-Micro Screening-
Norwalk, Connecticut

system in the secondary clarifiers is 90% complete. The $165,000 grant was awarded by the U.S. EPA last year.

Future Project

Construction of the Greenwich Avenue pump station is estimated to cost $1 million. No start-up date has been announced.

Stratford, Connecticut (Fairfield County)

Projects in Progress

Upgrading of Stratford's dewatering process is continuing. Installation of new belt filter presses is 10% complete. The cost for the equipment procurement and installation will be $400,000.

Construction is 95% complete on the $1.4 million sludge dewatering facility.

Ten percent of the Broad Bridge pumping station upgrade is complete. This $80,000 project includes the installation of a third pump, a diesel generator, and the upgrading of the two existing pumps.

West Haven, Connecticut (New Haven County)

Projects in Progress

An SSES is in progress.

Negotiations are under way with the Town of Orange regarding diversion of flows to the West Haven Treatment Plant.

Work has recently begun on a $1.25 million project to revamp the plant, pump stations, sewer lines, and plant building.

Westport, Connecticut (Fairfield County)

Completed Project

The Step I 201 Facilities Plan study has been completed.

Project in Progress

As recommended by the 201 study, ground was broken in September 1983 for five new pump stations and sewer lines

on the west side of the Saugatuk River, as well as rehabilitation of existing sewers. This work should eliminate most of the combined sewers in that area. Total costs including engineering and administrative fees amount to $1.05 million.

## NEW JERSEY WATER POLLUTION CONTROL PLANTS

### Atlantic Highlands, New Jersey (Monmouth County)

Refer to the Atlantic Highlands/Highlands Regional Sewerage Authority write-up.

### Atlantic Highlands/Highlands Regional Sewerage Authority, New Jersey (Monmouth County)

#### Completed Project

A Step II 201 Facilities study has been completed and a report issued.

#### Future Projects

Original plans to build a new regional treatment plant for Highlands and Atlantic Highlands have been changed. The new plan calls for these towns to pump their sewage to the Township of Middletown Sewerage Authority. Pump stations at Highlands and Atlantic Highlands will convey the sewage through 25,000 feet of force main to the Middletown plant. A combined cost to both towns has been estimated to be $4.5 million. A tie-in target date of 1985 has been set.

The Middletown plant will be expanded to handle an additional flow of 1.3 MGD. New equipment on the agenda includes primary and secondary tanks and trickling filters. Modifications to the aeration tanks and chlorine contact tanks will also be made.

The Step III 201 construction grant of $15 million is expected to be awarded in late 1983; construction should begin in the spring of 1984.

### Bayonne, New Jersey (Hudson County)

#### Completed Projects

A new 1600 amp electric service is fully operational. The $20,000 installation provides the additional electricity required to power the main sewage pumps.

A sludge management study has been completed and a report issued.

#### Future Projects

Rehabilitation of Bayonne's tide gates and regulators

is high on the priority list. A start-up date has not been determined.

Under the auspices of the HCUA, it is proposed that this facility be upgraded to secondary treatment. Refer to the HCUA write-up for additional information.

## Bayshore Regional Sewerage Authority, New Jersey (Monmouth County)

### Completed Projects

The Step I 201 Phase III feasibility study, which addresses improvements in plant facilities and corrects design errors, is complete. Final costs of $500,000 were accrued.

A sludge management study is also complete. The study calls for the installation of a high pressure belt filter press, a heat exchanger, and an air preheater for the incinerator. The improvements are scheduled for installation in early 1984, at a cost of $300,000.

### Project in Progress

Keansburg, a member community of the Bayshore Regional network, is currently working to improve their sewer system by eliminating illegal connections and storm sewers. The project is 28% complete and is expected to be finished in late 1984. The $10 million project is financed by federal, State, and local funds.

## Carteret, New Jersey (Middlesex County)

Refer to the Middlesex County Utilities Authority write-up.

## Edgewater, New Jersey (Bergen County)

### Project in Progress

A Step II 201 Facilities Design study is almost complete. A cost of $1 million was incurred for this project.

### Future Projects

Cost estimates of $1.6 million have been made for construction and rehabilitation of pump stations, regulators, and sewer lines.

A cost estimate for upgrading to secondary treatment now stands at $10 million. Units included in the plan are rotating biological contactors, influent pumping stations,

grit collectors, a high rate clarifier, secondary tanks, and a chlorine contact tank. No start-up date has been announced.

## Highlands, New Jersey (Monmouth County)

See the Atlantic Highlands/Highlands Regional Sewerage Authority write-up.

## Hoboken, New Jersey (Hudson County)

### Future Project

Under the direction of the HCUA, this facility is being upgraded to secondary treatment. When completed, wastewater from the surrounding communities, including West New York and Woodcliff, will be treated here. Refer to the HCUA write-up for additional details.

## Hudson County Utilities Authority, New Jersey (Hudson County)

### Completed Projects

The Step II 201 Facilities Design has been completed. The study has specific plans for the rehabilitation of regulators, tide gates, and new sludge dewatering equipment for all three drainage areas.

A sludge disposal study is 98% complete. Disposal alternatives that are being considered are incineration and co-disposal.

### Future Projects

The three drainage basins regulated by the Authority are: Area I - Jersey City (East and West), western North Bergen, Kearny Point, the western slope of Union City, and Secaucus; Area II - Bayonne; Area III - Hoboken including Weehawken, eastern Union City, and West New York.

The expected cost for construction to upgrade and rehabilitate this extensive network of drainage basins is $510 million. The estimate for new pump stations, interceptor lines, collector sewer rehabilitation, and tide gate and regulator rehabilitation is $68.4 million.

As of December 1983, HCUA is receiving bids for a revised Facilities Plan. The Plan will address the individual municipalities' alternatives as to operating as separate entities or be involved with regionalization. All current

plans for HCUA's drainage basins are subject to change pending the revisions.

Jersey City - East, New Jersey (Hudson County)

Future Project

It is planned to upgrade this facility to secondary activated sludge treatment. The new 57.5 MGD plant will be enhanced with a new aeration tank, secondary clarifiers, a chlorine contact tank, and sludge handling equipment. When complete, wastewater from the surrounding communities; including Secaucus, western North Bergen, and western Union City; will be treated here. Jersey City - East operates under the auspices of the HCUA. Refer to the HCUA write-up for more details.

Jersey City - West, New Jersey (Hudson County)

Future Project

Plans for the Hudson County Utilities Authority's Drainage Area I include diversion of this facility's flows to the Jersey City - East plant for treatment. Refer to the HCUA write-up for more details.

Joint Meeting of Essex and Union Counties, New Jersey (Union County)

Projects in Progress

An I/I Phase IIB 201 study is continuing.

Construction is nearly complete for facilities that will provide electric power utilizing digester gas. The cost of the project is $6 million.

Future Project

A sludge dewatering and incineration facility is proposed at a cost of $10,000.

Kearny, New Jersey (Hudson County)

Future Project

Design work and subsequent construction of new pump stations and force mains are the main agenda items for the next several years (1984 - 1986). Flows will be diverted to the Passaic Valley Sewerage Commissioners' facility; a reestimated cost of $5 million has been made. Refer to the HCUA

write-up for additional details.

## Linden Roselle Sewerage Authority, New Jersey (Union County)

### Projects in Progress

A sludge management plan has been segmented into two parts -- intermediate and long-term. The intermediate plan consists of dewatering and landfilling. No date has been set for land disposal operations. See the "Future Projects" section for the sludge management long-term phase.

A permanent sludge disposal study is currently at the Step II stage.

### Future Projects

The permanent sludge disposal plan consists of dewatering and co-disposal of the sludge by incineration with garbage. This is a joint venture with the Rahway Valley Sewerage Authority. The cost for the plan is estimated to be $14 million of which Linden Roselle is committing 40%.

A $10 million proposal is awaiting federal funding. The project will eliminate bypass discharges from a pump station and a tide gate. Plans call for construction of 20,000 linear feet of gravity flow relief sewers in Linden.

## Middlesex County Utilities Authority, New Jersey (Middlesex County)

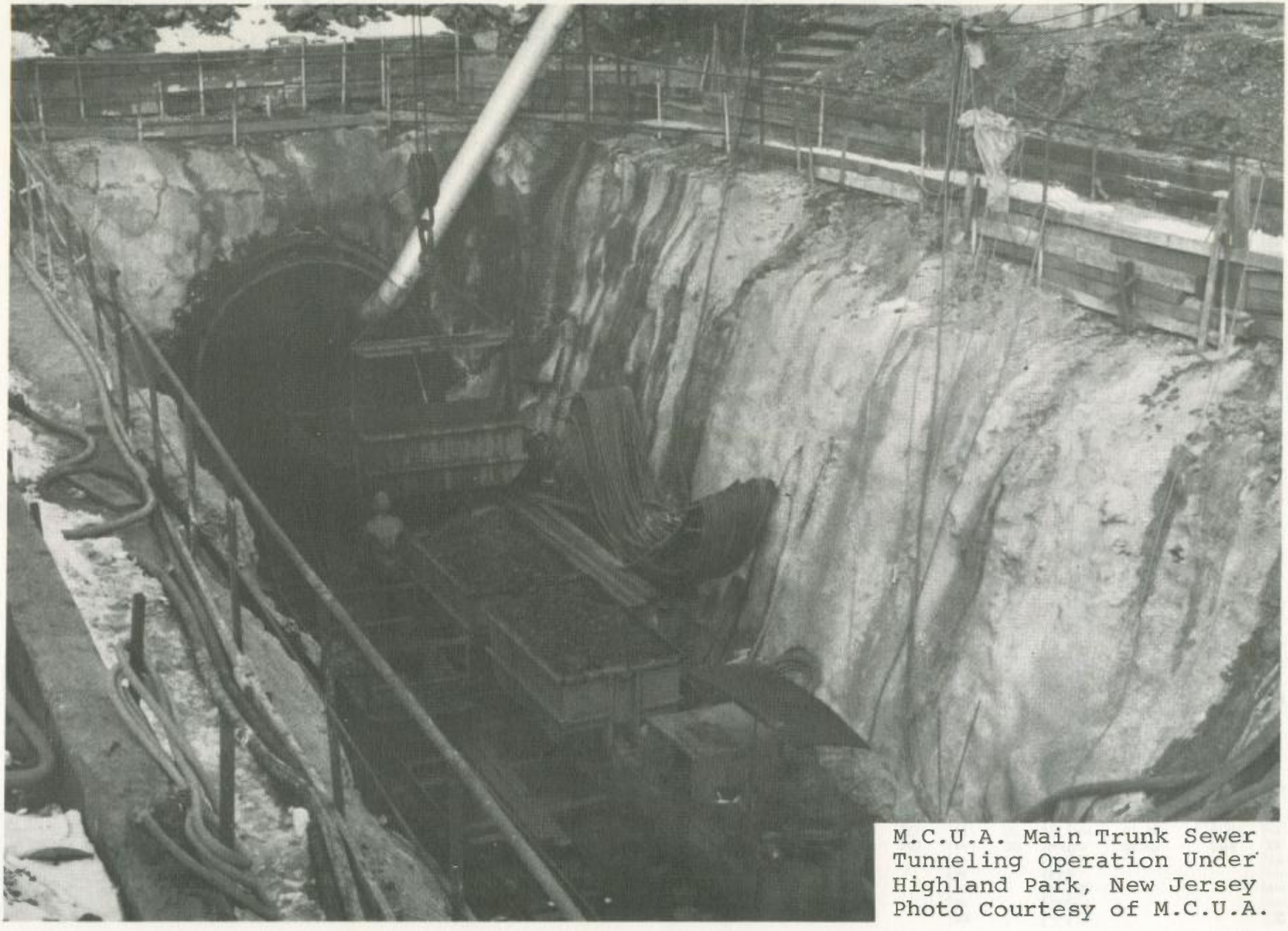
### Completed Projects

The SSES/CSO study has been completed at a cost of $600,000.

All relief lines and pumping stations have been completed, except for the Sayerville station which is scheduled to be completed in late 1983. The cost of the entire project amounts to $84.484 million.

### Future Project

Carteret, Perth Amboy and Woodbridge are under order by the U.S. EPA and N.J. DEP to join the Middlesex County Utilities Authority's system. The Old Bridge Township Sewerage Authority, Sayreville (Morgan and Melrose), and South Amboy are also expected to join the system. No construction has been scheduled due to funding uncertainties. An estimate of $56 million has been made for this project.



M.C.U.A. Main Trunk Sewer
Tunneling Operation Under
Highland Park, New Jersey
Photo Courtesy of M.C.U.A.

## Military Ocean Terminal, New Jersey (Hudson County)

### Project in Progress

A pollution abatement project is 96% complete. Emergency generators and grease separators are being installed at a cost of $317,000.

## Old Bridge Township Sewerage Authority, New Jersey (Middlesex County)

Refer to the Middlesex County Utilities Authority write-up.

## Passaic Valley Sewerage Commissioners, New Jersey (Essex County)

### Completed Projects

An I/I and a CSO study have been completed and reports issued.

### Projects in Progress

A study involving headworks rehabilitiation is still under way.

Sixty-five percent of the construction of the primary clarifiers is complete. Included in this $75 million cost are grounds maintenance, access roads, and landscaping.

### Future Project

The final cost for pump station rehabilitation is estimated to be $4.5 million.

## Perth Amboy, New Jersey (Middlesex County)

### Project in Progress

Construction is 60% complete at this primary plant. A cost of $75,000 is being incurred for the following: sludge belt conveyer, ferric chloride tank, grounds rehabilitation, roofing, and a heating system in the chlorine building.

### Future Projects

An estimate of $35,000 has been made for a new sludge dump yard and flowmeter.

See the Middlesex County Utilities Authority write-up for additional information.

Rahway Valley Sewerage Authority, New Jersey (Middlesex County)

Projects in Progress

Construction is 98% complete on a $7.5 million sludge dewatering system. Newly installed equipment includes six belt filter presses, a collection system, meter rehabilitation, and supervisory offices.

Eighty-seven percent of the work is complete for additional grit handling facilities. A total cost of $484,000 is the estimate for this project.

Future Project

Refer to the Linden Roselle Sewerage Authority write-up.

Sayreville - Melrose and Morgan Plants, New Jersey (Middlesex County)

Refer to the Middlesex County Utilities Authority write-up.

South Amboy, New Jersey (Middlesex County)

Refer to the Middlesex County Utilities Authority write-up.

West New York, New Jersey (Hudson County)

Refer to the Hudson County Utilities Authority and Hoboken write-ups.

Woodbridge, New Jersey (Middlesex County)

Completed Project

The I/I 201 Facilities Study has been completed at a cost of $400,000.

Future Project

A grant application has been submitted for Step II 201 construction. It is proposed that this primary plant be converted to a pump station and a new interceptor sewer be built to divert flows to MCUA. Refer to the Middlesex County Utilities Authority write-up for further information.

Woodcliff - North Bergen, New Jersey (Hudson County)

Refer to Hoboken and Hudson County Utilities Authority write-ups.

## NEW YORK WATER POLLUTION CONTROL PLANTS

### Bay Park Sewage Treatment Plant - Disposal District No. 2, New York (Nassau County)

#### Completed Project

The sludge management plan which consisted of construction of an 80-foot digester, two 90-foot sludge storage tanks with supporting equipment, and rehabilitation of existing tanks is 99% complete. The cost of this project was approximately $12 million.

#### Projects in Progress

An engineering feasibility study for an ocean outfall and route selection is 90% complete, but is being held in abeyance pending the outcome of New York State's ruling on receiving water limitations.

Phase I construction has begun and consists of five aerobic fluidized bed reactors and two final clarifiers. The cost upon completion is estimated to be $23 million.

Rehabilitation of the Island Park sewer system is 80% complete and estimated to cost $5 million.

#### Future Projects

Construction will begin early in 1984 for Phase II preliminary modifications. It will include new bar screen units, grit removal tanks, primary tanks, and improvements to existing equipment. Phase III will include all remaining facility improvements. The estimated cost for these projects is $55 million.

### Blind Brook, New York (Westchester County)

#### Completed Projects

A Sewer System Evaluation Survey (SSES) and a Value Engineering Study (VES) have been completed.

The construction of a combined effluent outfall and sludge force mains for Blind Brook and Port Chester are complete. The final costs amounted to $3 million.

#### Projects in Progress

Construction to upgrade this facility to a 5 MGD sec-

ondary activated sludge plant is 99% complete, but the facility is still providing only primary treatment. The primary status will be maintained until mid-1985 when sludge handling facilities at Port Chester will be complete. New secondary units include aeration tanks, final settling tanks, and sludge handling facilities. Costs have amounted to $12.3 million.

Refer to the Port Chester write-up for further information on projects in progress.

Bowery Bay, New York (Queens County)

Completed Project

While awaiting approval of a Step I 201 Facilities Plan application, remedial corrections have been made by New York City plant personnel that have enabled this plant to operate in the step aeration mode.

Projects in Progress

An I/I study was implemented in July of 1983.

A plan of study has been submitted for approval prior to submission of a Step I 201 Facilities Plan application to correct some plant operational deficiencies.

The remainder of this section applies to all New York City wastewater treatment facilities.

The City has contracted with a consultant to study the existing sewer regulator system and develop a Regulator Improvement Program. This study will inventory the existing regulators, determine tributary areas and flows, and analyze this information to make recommendations for the improvement of operation and maintenance of the system.

The City of New York has a pretreatment program and sewer use laws and regulations administered by the Industrial Waste Control Section of the Department of Environmental Protection. Federal regulations require that New York City study new federal pretreatment requirements and make any needed changes to existing sewer use laws, regulations, and enforcement procedures. The City has contracted with a consultant to develop a pretreatment program which meets all federal and State requirements. This project will evaluate current and proposed federal and State pretreatment requirements in light of actual industrial discharges, existing City sewer use laws and regulations, and current NYC DEP monitoring and enforcement programs for industrial wastewa-

ters. Pollutants received by the City's water pollution control plants will be identified and quantified by means of sampling and laboratory analysis. This data, along with other available information, will be used to develop recommendations for any changes to the City's sewer use laws and regulations that may be required.

A combined sewer overflow study is about to get under way to identify and assess the combined sewer overflows which result in contravention of water quality standards. A plan for an abatement program to eliminate those contraventions by reducing CSO discharges will be put into operation. This study and abatement program is being conducted in accordance with SPDES requirements for each of the 14 facility planning areas in New York City.

Future Project

It is proposed that this secondary activated sludge facility undergo rehabilitation. The cost of this project is estimated at $11.5 million.

Cedar Creek Water Pollution Control Plant - Disposal District No. 3, New York (Nassau County)

Completed Project

The Step I 201 Facilities Plan was completed.

Project in Progress

The Step II 201 Facilities Plan Design study is under way.

Future Project

The advanced wastewater treatment facility will be removed from service in 1984. The equipment needed to run the secondary activated sludge plant will be returned from the advanced wastewater treatment facility. The cost to rehabilitate these units has been estimated at $2 million to $3 million.

Coney Island, New York (Kings County)

Projects in Progress

Based upon the results of the I/I study and the Step I 201 Facilities report, an upgraded plant is being designed to provide 90% removals of BOD and suspended solids. Plans and specifications have been prepared for the first phases

of the construction program. The remainder of the design is under way. Construction grants have been approved for the first two phases. Construction began on the primary tanks, power house, and pump installation. A cost estimate of $110.5 million has been placed on this work which is 1% complete.

In addition, emergency rehabilitation work has been approved for the purchase and installation of an engine generator and auxiliaries.

See the Bowery Bay write-up for additional projects in progress.

Future Projects

An application has been submitted for aid for the next phase of construction which is the installation of the sludge force main and pumping station.

The estimated cost for adding aeration and final settling tanks, thickeners, new main pumps, and process blowers is $372 million.

Great Neck Water Pollution Control District, New York (Nassau County)

Completed Projects

Phase I of the 201 Facilities Plan study was completed.

Sewer line replacements were completed at a cost of $180,000.

Future Projects

Phase II, the design portion of the 201 study, is expected to begin in 1984.

Plant expansion construction will include new headworks, primary and final settling tanks, a 90-foot diameter trickling filter, digester gas storage tanks, and a chlorine contact tank. Replacement of approximately 8000 linear feet of sewers and rehabilitation of three pumping stations was also recommended in the 201 Facilities Plan study. The start-up date is anticipated for 1986 at a cost of $13 million.

## Great Neck Village Water Pollution Control Plant, New York (Nassau County)

### Completed Project

The 201 Facilities Plan study has been completed and is now under review by the NYS DEC.

### Project in Progress

A sodium hydroxide scrubber is being installed to remove odors generated in the covered grit chamber and primary settling tank units. It is 90% complete and its estimated cost is $50,000.

## Harbour Club Apartments, New York (Suffolk County)

### Completed Projects

The flow from this apartment complex has been diverted to Suffolk County Sewer District #3 at Bergen Point. The Harbour Club plant was dismantled at a cost of $3500. Sewer line extension to tie into the Suffolk County system was done at a cost of $34,000.

## Huntington Sewer District, New York (Suffolk County)

### Completed Project

An equalization system has been added to the septic waste handling facilities. This system consists of a new pump station which is located on-site. It will pump the waste to an old digester which is being used as a holding tank. In this way, the stored load can be added gradually to the normal plant flow. The cost for this project was $44,000.

### Project in Progress

The Phase II 201 Facilities Design Plan study is now underway.

### Future Projects

Construction is expected to begin in mid-1984 to upgrade this sewage treatment plant. Modifications include new primary and secondary settling tanks, rotating biological disc filters, a chlorine contact tank, and an extended outfall line. Cost of this project is estimated to be $12.6 million.

New sewer lines and pump station construction are proposed for unsewered areas in the District at an estimated cost of $905,000.

## Hunts Point, New York (Bronx County)

### Completed Projects

While awaiting approval of a Step I 201 Facilities Plan application, plant personnel have rehabilitated the mechanical mixers in the digestion tanks. In addition, plant crews have increased the capture of grit which was being deposited in the thickeners and digesters that was hindering normal plant operations.

### Project in Progress

See the Bowery Bay write-up for projects in progress.

### Future Projects

A consultant has been selected to perform an I/I study in conjunction with a study to correct plant deficiencies and improve reliability.

Rehabilitative construction is planned for various operating units in conjunction with the replacement of the final settling tanks. The cost estimate for this work is $23 million.

## Inwood Water Pollution Control Plant - Disposal District No. 1, New York (Nassau County)

### Project in Progress

The rehabilitation and replacement of covers on the digesters is 98% complete. A completion target date is expected in March 1984 at a total cost of $1.098 million.

## Jamaica, New York (Queens County)

### Project in Progress

See the Bowery Bay write-up for projects in progress.

### Future Project

New York City will study residual chlorine effects in Jamaica Bay relating to potential biological, recreational, and public health impacts. The proposed work will attempt to produce a statistical data base on the concentration and

distribution of residual chlorine in Jamaica Bay and will assess the impact on the biology of the Bay.

Joint Regional Sewerage Board - Town of Haverstraw, New York (Rockland County)

Project in Progress

An industrial pretreatment analysis study is continuing on schedule.

Jones Beach Water Pollution Control Plant, New York (Nassau County)

Project in Progress

Rehabilitation continues on the sludge drying beds, primary and secondary settling tanks, and trickling filter. Among the equipment to be replaced are the trickling filter distribution arm, the floating cover on the west digester, the recirculation pumps, and an emergency generator. The sodium hypochlorite system has been installed and is in service. This entire project is approximately 90% complete and will cost an estimated $578,000.

Long Beach Water Pollution Control Plant, New York (Nassau County)

Project in Progress

A 201-funded sludge management study is continuing on schedule.

Mamaroneck, New York (Westchester County)

Completed Projects

An SSES has been completed and a report has been issued.

The 201 Facilities Plan has been prepared for two segments of the Mamaroneck treatment works upgrading. The Siphon Area Facilities Planning deals with interceptor sewer upgrading. The Outfall Pipeline Facilities Planning provides for additional capacity to the plant's outfall.

New Rochelle, New York (Westchester County)

Completed Project

An SSES is complete and a report has been issued.

## Newtown Creek, New York (Kings County)

### Completed Project

The Step I 201 Facilities Plan has been completed at a cost of $3.2 million. This Plan recommends methods for upgrading the existing plant.

### Projects in Progress

An I/I study is proceeding on schedule. The study has a cost estimate of $1.745 million.

Modifications to the Manhattan pump station to conserve energy and eliminate excessive heat are still under way at a cost of $1.9 million.

See the Bowery Bay write-up for additional projects in progress.

## Northport Wastewater Treatment Plant, New York (Suffolk County)

### Project in Progress

An energy conservation study is being conducted to investigate reductions in operating costs.

### Future Project

Changes to pumps and the aeration system are being considered at an estimated cost of $48,000.

## North River, New York (New York County)

### Projects in Progress

The Step II design work for the plant superstructure and the rooftop park has a reestimated cost of $24.8 million. The cost for the prepurchase of plant equipment has also been reestimated at $51 million.

Construction has begun on the main building, preliminary tanks, and the sludge facilities. Work will begin shortly on the interim facilities and electrical contracts. This work is 25% complete and will cost approximately $290 million.

See the Bowery Bay write-up for additional projects in progress.

## Oakwood Beach, New York (Richmond County)

### Projects in Progress

The Fresh Kills interceptors are under construction and are substantially complete at a cost of $18 million.

The consultant design contract for the Mayflower pumping station is proceeding on schedule.

The final facility plan for the West Branch interceptor system is still in preparation.

See the Bowery Bay write-up for additional projects in progress.

### Future Projects

The final design of the West Branch interceptor system to Tottenville, which will complete the Oakwood Beach WPCP project, is awaiting completion of the final facility plan to determine routing and method of construction.

A consultant has also been selected to perform an I/I study update for this facility.

A grant for construction of a section of the West Branch interceptor has been approved for a bid cost of $2.7 million and construction will commence in the near future.

A grant for construction of the remainder of the Eltingville and Richmond Hill Road pumping station has been approved for a bid cost of $19.8 million and construction will commence next year.

## Orange & Rockland Utilities, New York (Rockland County)

### Project in Progress

A new 0.12 MGD secondary activated sludge facility is 90% complete. This package plant is totally enclosed in a new facility.

### Future Project

Plans are complete for this facility's addition of two new lift stations to be installed and the existing lift station modified.

Orangetown Sewer District, New York (Rockland County)

Projects in Progress

Engineering studies involving pretreatment of industrial loadings are under way. In addition, 201 Facilities Plan studies are addressing possible plant modification alternatives.

Ossining, New York (Westchester County)

Completed Project

This 7.5 MGD secondary activated sludge facility is 100% complete. Among the new items installed were screening, piping, primary clarifiers, conventional sludge bio-oxygenation, and secondary clarifiers.

Owls Head, New York (Kings County)

Projects in Progress

Based upon the results of the I/I study and the Step I 201 Facilities Plan, an upgraded plant is being designed to provide 90% removals of BOD and suspended solids. Plans and specifications have been prepared for the first phases of the construction program. The remainder of the design is under way. Construction grants have been approved for the first three phases. Construction has begun (1% complete) on the sludge processing complex and demolition of the aeration tank building superstructure. In addition, emergency rehabilitation work has been approved for the purchase and installation of an engine generator and auxiliaries. Final costs are estimated to be $67.7 million.

See the Bowery Bay write-up for additional projects in progress.

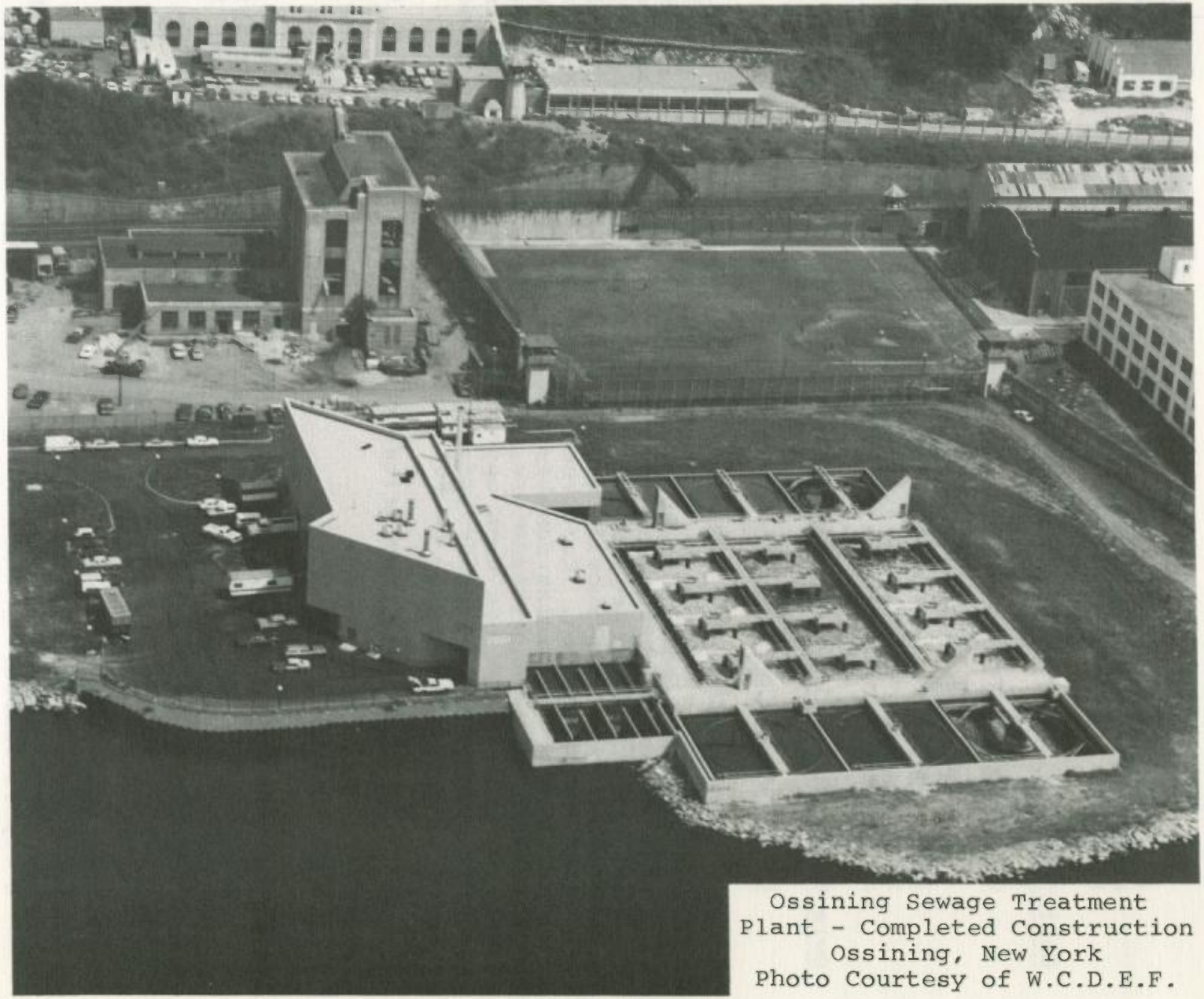
Future Project

An application has been submitted for aid for Phase 1 construction -- the pump and power house. The cost for this project is expected to be $256 million. An additional $7 million is to be allocated for pump station construction.

Oyster Bay Sewer District, New York (Nassau County)

Completed Project

The SSES, funded by a 201 grant, has been completed and a report issued.



Ossining Sewage Treatment
Plant - Completed Construction
Ossining, New York
Photo Courtesy of W.C.D.E.F.

Project in Progress

Phase II of the 201 Facilities Design study is in progress.

Port Chester, New York (Westchester County)

Completed Project

See the Blind Brook write-up.

Projects in Progress

Construction of an interim sludge handling facility, which will serve both Blind Brook and Port Chester, is 5% complete. An estimate of $2 million has been made for this project.

Under a consent order with NYS DEC, Port Chester is redesigning its treatment facility and is 50% complete. The redesign calls for secondary treatment utilizing rotating biological contactors. A construction start-up data has been set for early 1985.

Future Project

An estimate of $762,500 has been made for sewer rehabilitation work. Construction is expected to commence during the spring of 1984.

Port Richmond, New York (Richmond County)

Completed Project

Construction work for the rehabilitation of sludge docking facilities (Phase II) is expected to be completed by the end of 1983.

Project in Progress

See the Bowery Bay write-up for projects in progress.

Port Washington Water Pollution Control District, New York (Nassau County)

Completed Project

The Step I 201 Facilities Plan study has been completed and a report issued.

### Future Projects

The 201 study findings propose expansion of the existing sewage treatment plant to 4.0 MGD. New headworks, primary and final settling tanks, a trickling filter, a chlorine contact tank, and an extended outfall line will be installed. The estimated cost of this phase is $11.243 million. The 201 study also recommends replacement of 15,930 linear feet of sewer lines and the rehabilitation of three pumping stations at an estimated cost of $8.15 million.

## Red Hook, New York (Kings County)

### Completed Project

Step II, final design of the superstructure, was completed.

### Projects in Progress

Seventy-eight percent of the new interceptor sewer system is complete. This system will intercept and transmit the local dry weather flow to the treatment plant. A cost estimate of $106.4 million has been made.

A Step I 201 Facilities Plan for the Gowanus pumping station and a water quality study for the Gowanus Canal are still in progress.

The foundation and cofferdam for the main building are under construction at a cost of $7.9 million. The preliminary chlorine contact tanks are under construction at a cost of $6.1 million.

See the Bowery Bay write-up for additional projects in progress.

### Future Projects

The new 60 MGD activated sludge plant has a final, estimated cost of $290 million. Among the new units to be installed are primary aeration and final settling tanks, thickeners, digesters, sludge storage tanks, a main building, and an East River pier.

A grant for $22.5 million has been approved by the U.S. EPA for the prepurchase of materials and equipment for the superstructure.

A grant for $99 million has been approved by the U.S. EPA for the construction of the structural and associated

plumbing, HVAC, and electrical contracts for the superstructure.

Richmond Memorial Hospital, New York (Richmond County)

Completed Project

Design plans are complete for a new secondary activated sludge plant.

Future Project

Construction of a secondary treatment plant with a design flow of 0.025 MGD will start in January 1984. The sum of $175,000 has been appropriated for this job.

Rockaway, New York (Queens County)

Projects in Progress

A new small size blower is being installed to improve present energy efficiency.

See the Bowery Bay write-up for additional projects in progress.

Rockland County Sewer District #1, New York (Rockland County)

Completed Projects

The design stage is complete for a $34 million sewer system expansion program. The plan includes installation of interceptor sewers to service unsewered areas. In addition, a compost facility design and I/I remedial work is complete.

Future Project

This secondary treatment plant will be upgraded with rotating biological contactors and its capacity increased. The $62 million cost will cover expenditures for primary tanks, an aerated grit chamber, rotating biological contactors, secondary settling tanks and a composting facility.

Roslyn, New York (Nassau County)

Future Project

A proposal has been made to build a pumping station on-site. The associated force main will divert the sewage flow into the Nassau County sewerage system. This project is expected to begin late in 1985.

Springvale Apartments, Inc., New York (Westchester County)

Completed Project

Basic maintenance has been completed at a cost of $45,000. The work was comprised of installing new pumps, changing of medium in the trickling filter, and repairing of the primary settling tank walls.

Stony Point, New York (Rockland County)

Projects in Progress

Expansion construction is continuing at this secondary activated sludge plant. Fifty percent of this $753,000 project is complete. A digester, chlorine contact chamber, and a sludge belt press are being installed.

Stony Point's sewer system is being modified with a new pump station and force main. All flows in excess of 1 MGD will be pumped to the Joint Regional Sewerage Board in Haverstraw. This $821,900 project is 50% complete.

Suffolk County Sewer District #1, Port Jefferson, New York (Suffolk County)

Completed Project

A 201 Facilities Design Plan has been completed.

Future Projects

Construction upgrading has been estimated at $3.1 million. This primary plant will be converted to a secondary activated sludge facility with a design flow of 0.6 MGD. This flow represents Port Jefferson's flow only. New units on the agenda include aeration tanks, secondary settling tanks, disinfection and sludge thickening equipment.

A cost estimate of $1.7 million has been made for pump station and force main installation. Included in this cost is sewer system rehabilitation. A start-up date has not been determined.

Suffolk County Sewer District #1, S.U.N.Y., New York (Suffolk County)

Completed Project

A 201 Facilities Design Plan has been completed.

Future Project

It is proposed that this plant be upgraded to a design flow of 2 MGD which will use advanced secondary treatment. The treated flow represents the college's load only. The plant will incorporate an oxidation ditch for BOD and nitrogen removals. Final expenditures have been estimated to be $10,990,000.

Suffolk County Sewer District #6, Kings Park, New York (Suffolk County)

Project in Progress

An engineering study is under way to determine improvement alternatives for sludge handling and plant safety modifications.

Future Project

An estimate of $260,000 has been made for the plant's proposed sludge and safety modifications.

Tallman Island, New York (Queens County)

Projects in Progress

An I/I study was implemented in July of 1983.

See the Bowery Bay write-up for additional projects in progress.

26th Ward, New York (Kings County)

Projects in Progress

See the Bowery Bay write-up for projects in progress.

Wards Island, New York (New York County)

Projects in Progress

A consultant has been selected to perform an I/I study on this facility.

See the Bowery Bay write-up for additional projects in progress.

## West Long Beach Sewer District, New York (Nassau County)

### Projects in Progress

Replacement of existing digester equipment, an emergency generator, a lift station, and treatment plant pumps is currently under way. Approximately 5% of the project is completed. The estimated cost of this project is $2.915 million.

Also in progress are improvements to the three pumping stations in the system. This phase of the modernization is also about 5% complete and is estimated to cost $870,000.

## Yonkers Joint Treatment Plant, New York (Westchester County)

### Project in Progress

The combined sewer overflow study is continuing on schedule.

## EFFLUENT AND WATER QUALITY MONITORING

The quality of the District waters is monitored and checked by using remote automatic water monitors and by conducting helicopter sampling surveys. The Commission regularly samples the effluents of municipal, privately owned and industrial wastewater treatment plants that discharge into District waters. The samplings are conducted by the Commission's field personnel and the analyses are performed by the ISC laboratory.

The laboratory maintained its permanent New Jersey wastewater certification and continued to participate in the U.S. EPA Water Pollution Laboratory Evaluation Program. This year, samples were analyzed as part of the U.S. EPA's Water Supply Microbiological Study and for the New York State Department of Health's Drinking Water Proficiency Testing Program for bacteriology proficiency. In addition, the U.S. Food and Drug Administration (FDA) evaluated the Commission's proficiency in microbiology and found the facilities satisfactory.

A new autoclave/sterilizer was purchased this year. A prime laboratory equipment deficiency continues to be the absence of a gas chromatograph/mass spectrophotometer which would greatly enhance the Commission's ability to monitor for the presence of toxic substances.

### Effluent Monitoring

The Commission samples municipal sewage treatment plants and a limited number of industries discharging into District waters. The results of the analyses and the records and facilities inspections are used to determine compliance with the Commission's regulations and N/SPDES permit requirements.

Sewage treatment plants and some industries are sampled for a six hour period. Other industries are sampled for twenty-four hours or a full day's production, if less than twenty-four hours. Industrial plants are sampled for a wide range of parameters, such as heavy metals, nutrients, chlorinated hydrocarbons and purgeable organic compounds. Many of the industries are sampled at the request of and in cooperation with the member States and the U.S. EPA. All data and reports are furnished to the appropriate state and federal agencies.

### Water Quality Monitoring

#### Remote Automatic Water Quality Monitoring

During this year, a new monitoring location was established on Pier A in the Hudson River at the Battery. However, due to budgetary constraints, this new station as well as the previously

operational stations have been placed on standby. This status denotes that the monitors have been left in place and can be calibrated and manually operated if a situation warrants. They also can be placed back on-line for automatic operation with minimum effort when funds become available.

During the portion of the year that the monitors were in operation, four parameters -- conductivity, dissolved oxygen, temperature, and pH -- were continuously measured at each station. These data were transmitted hourly to a central receiver at the Commission's office, summary reports were generated daily and the information was sent to the appropriate state and federal agencies. In addition, entries are made to STORET -- a national data base maintained by the U.S. EPA.

A map showing the location of the monitors and a description of the sites are on the following pages. Graphs for the past five years showing the monthly maximum, minimum, and average values for each parameter at each station are also included. The monthly maximum and minimum represent the single highest value and the single lowest value for the month, respectively. The monthly average is the average of the daily average values for the month. Dotted lines indicate a month for which less than ten days of data were available.

Following the graphs is a table showing the percent of time that the dissolved oxygen met Commission requirements at each remote automatic water quality monitoring station for the period October 1, 1982 through September 30, 1983 (water year 1983).

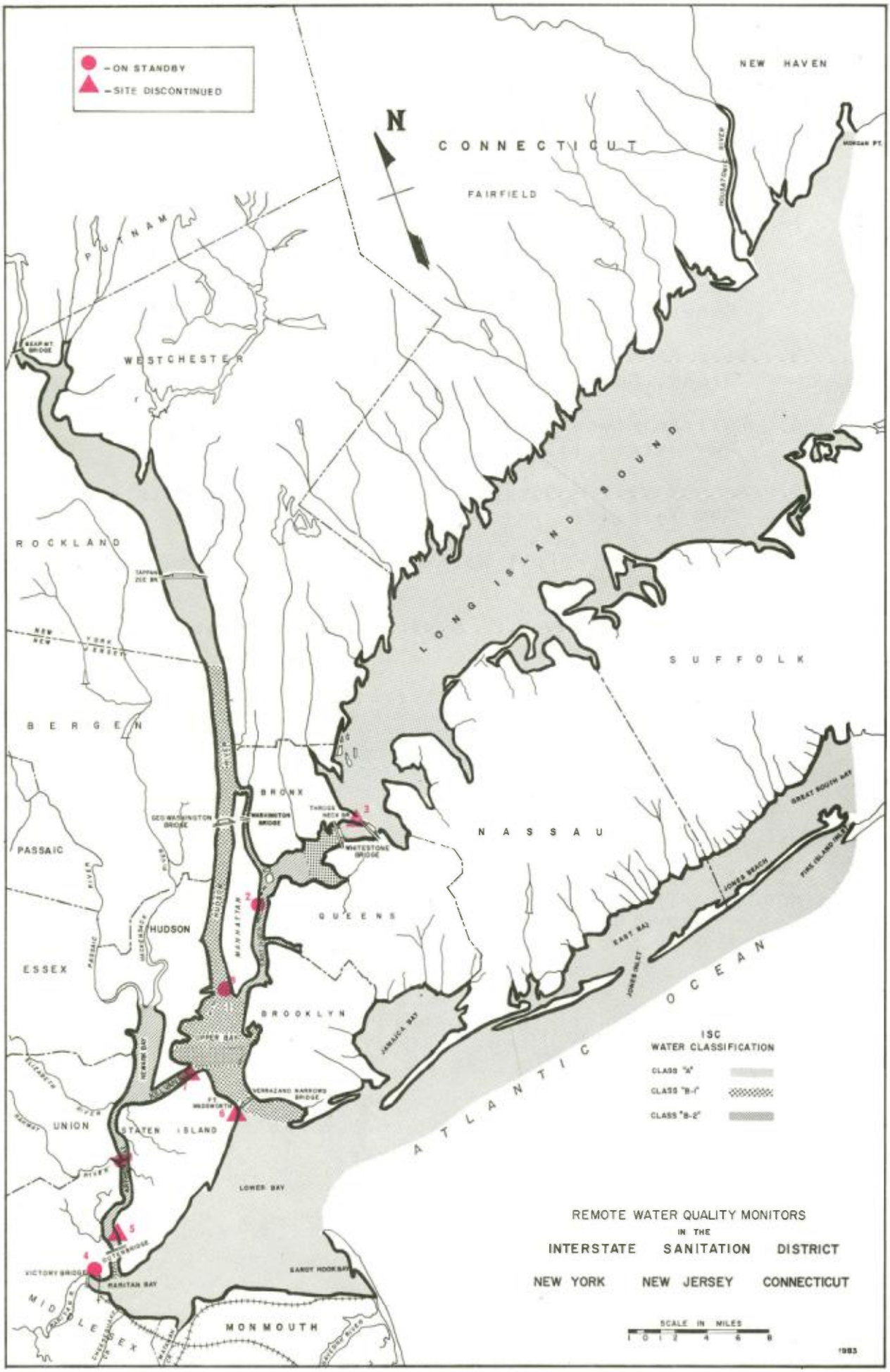
## Water Quality Surveys

Water quality surveys in the District were conducted by helicopter during the months of March, July, August, and September. Use of a helicopter enables a large survey area to be sampled during a single portion of a tidal cycle and also eliminates problems encountered with shipboard analyses. A map of the water quality sampling areas and lists of the sampling station descriptions are shown on the following pages.

In addition to the conventional pollutant parameters, samples were taken for nutrients, heavy metals, oil and grease, and toxic organics. These data are available at the Commission and through STORET.

## Special Coliform Survey

In 1968, the State of New Jersey upgraded portions of Raritan Bay and Sandy Hook Bay to the "Special Restricted" classifi-


● – ON STANDBY
▲ – SITE DISCONTINUED
N
CONNECTICUT
NEW HAVEN
FAIRFIELD
PUTNAM
WESTCHESTER
ROCKLAND
LONG ISLAND SOUND
SUFFOLK
BERGEN
BRONX
NASSAU
PASSAIC
HUDSON
QUEENS
ESSEX
BROOKLYN
UNION
STATEN ISLAND
ATLANTIC OCEAN
MONMOUTH
MIDDLESEX
ISC
WATER CLASSIFICATION
CLASS "A"
CLASS "B-1"
CLASS "B-2"
REMOTE WATER QUALITY MONITORS
IN THE
INTERSTATE SANITATION DISTRICT
NEW YORK NEW JERSEY CONNECTICUT
SCALE IN MILES
0 1 2 4 6 8
1983

# REMOTE AUTOMATIC WATER QUALITY MONITORING STATIONS IN THE INTERSTATE SANITATION DISTRICT

1. Arthur Kill - Consolidated Edison Arthur Kill Generating Station, Staten Island, New York (1)

2. East River - Consolidated Edison Ravenswood Generating Station, Long Island City, New York (1)

3. East River - Throgs Neck Bridge, Fort Schuyler, Bronx, New York (2)

4. Raritan River - Victory Bridge, Perth Amboy, New Jersey (1)

5. Arthur Kill - Outerbridge Crossing, Staten Island, New York (2)

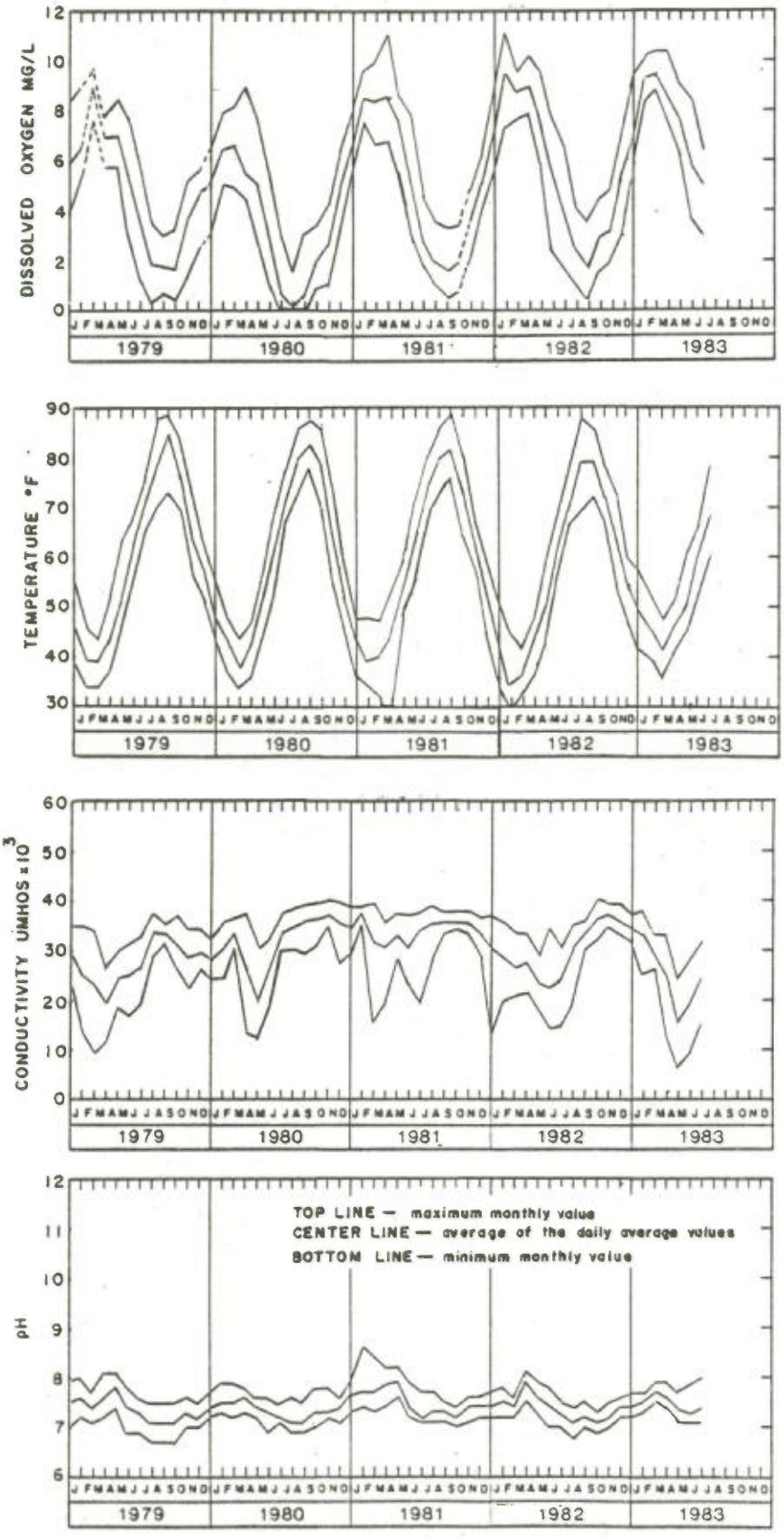
6. The Narrows - Fort Wadsworth, Staten Island, New York (2)

7. Kill Van Kull - U.S. Gypsum Company, Staten Island, New York (2)

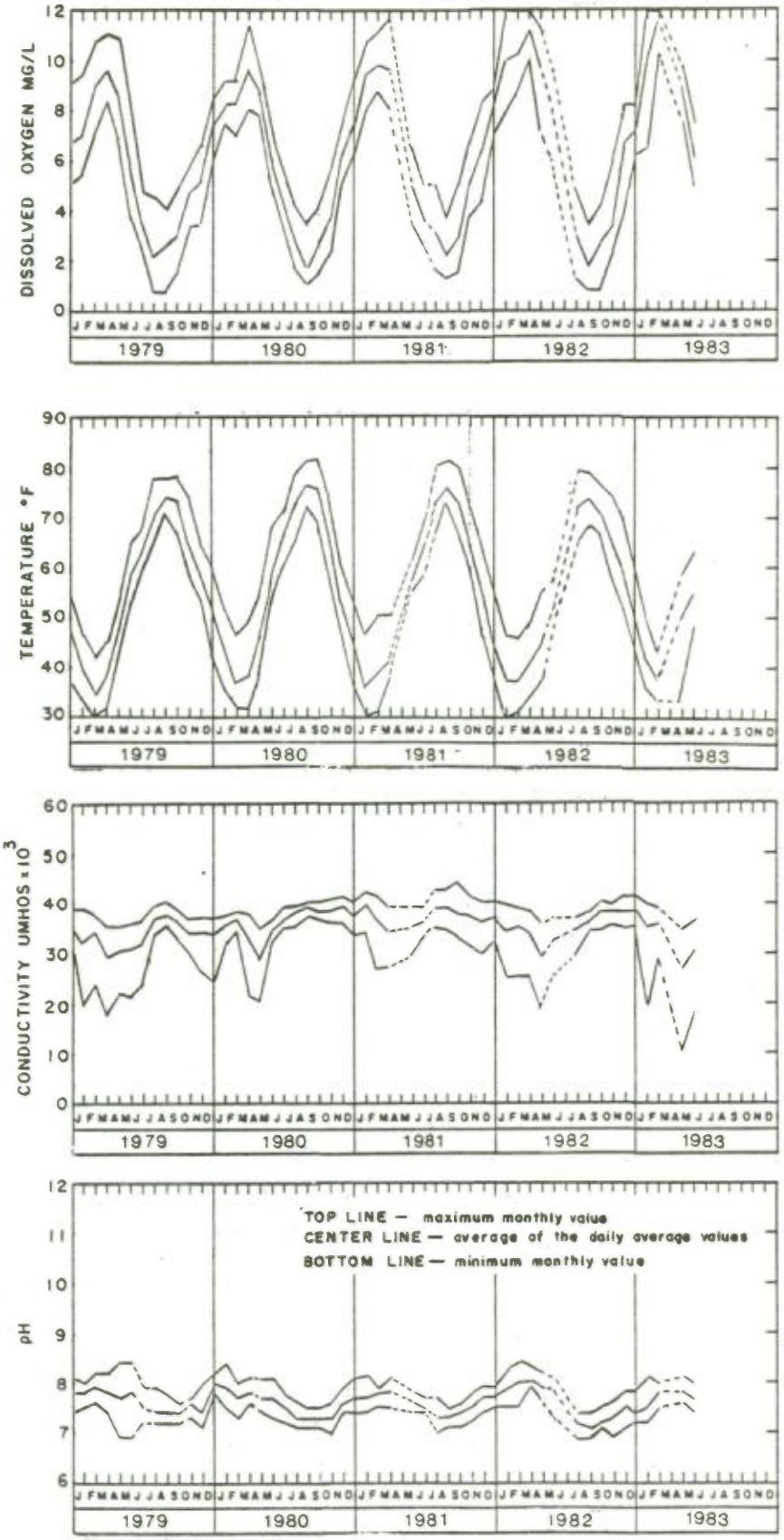
8. Hudson River at the Battery (1)

NOTES: (1) Presently on standby
(2) Site discontinued

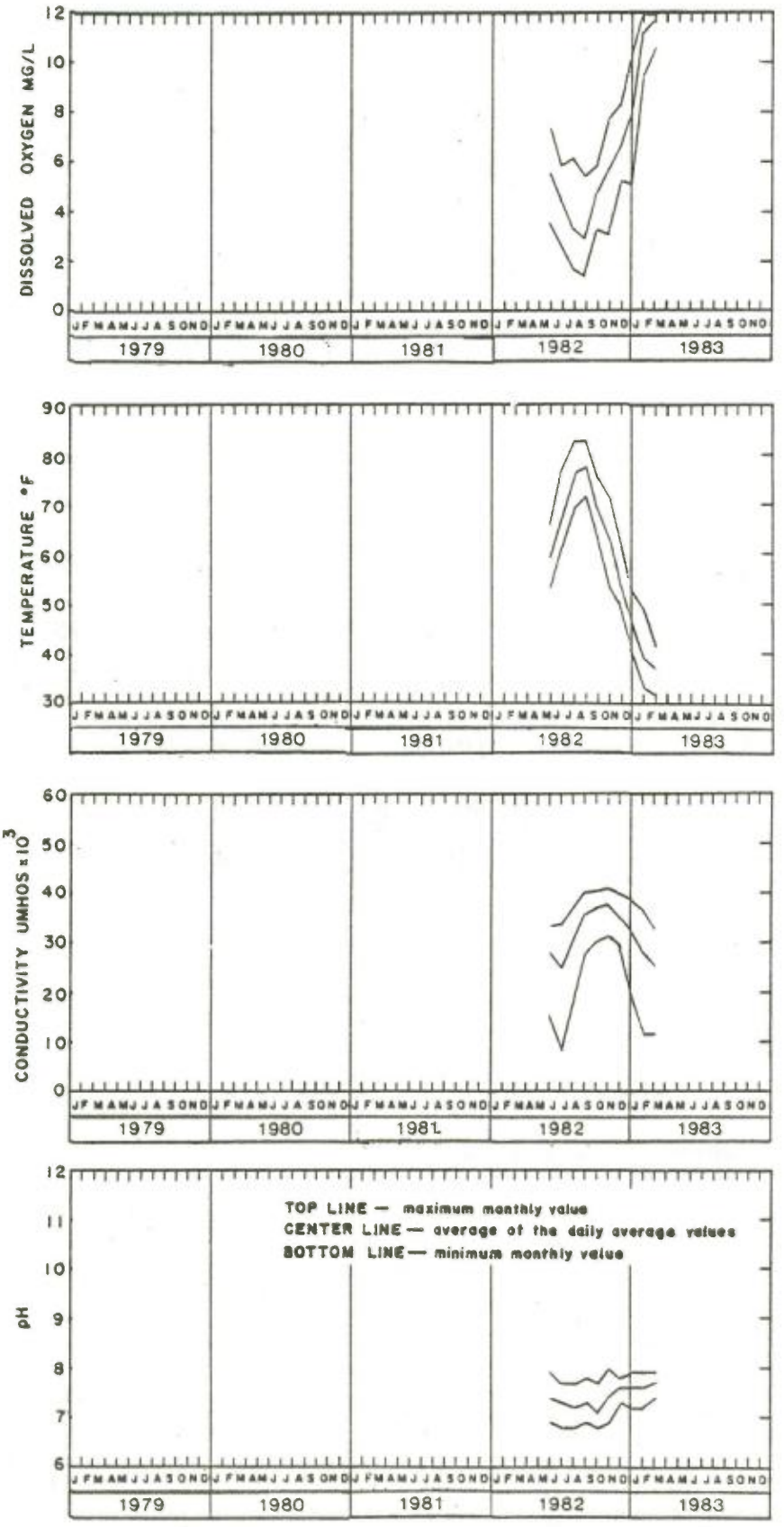
ARTHUR KILL — CON ED. (station no. 1)



EAST RIVER — CON ED. (station no. 2)



## RARITAN RIVER—VICTORY BRIDGE (station no. 4).



PERCENT OF TIME INTERSTATE SANITATION COMMISSION

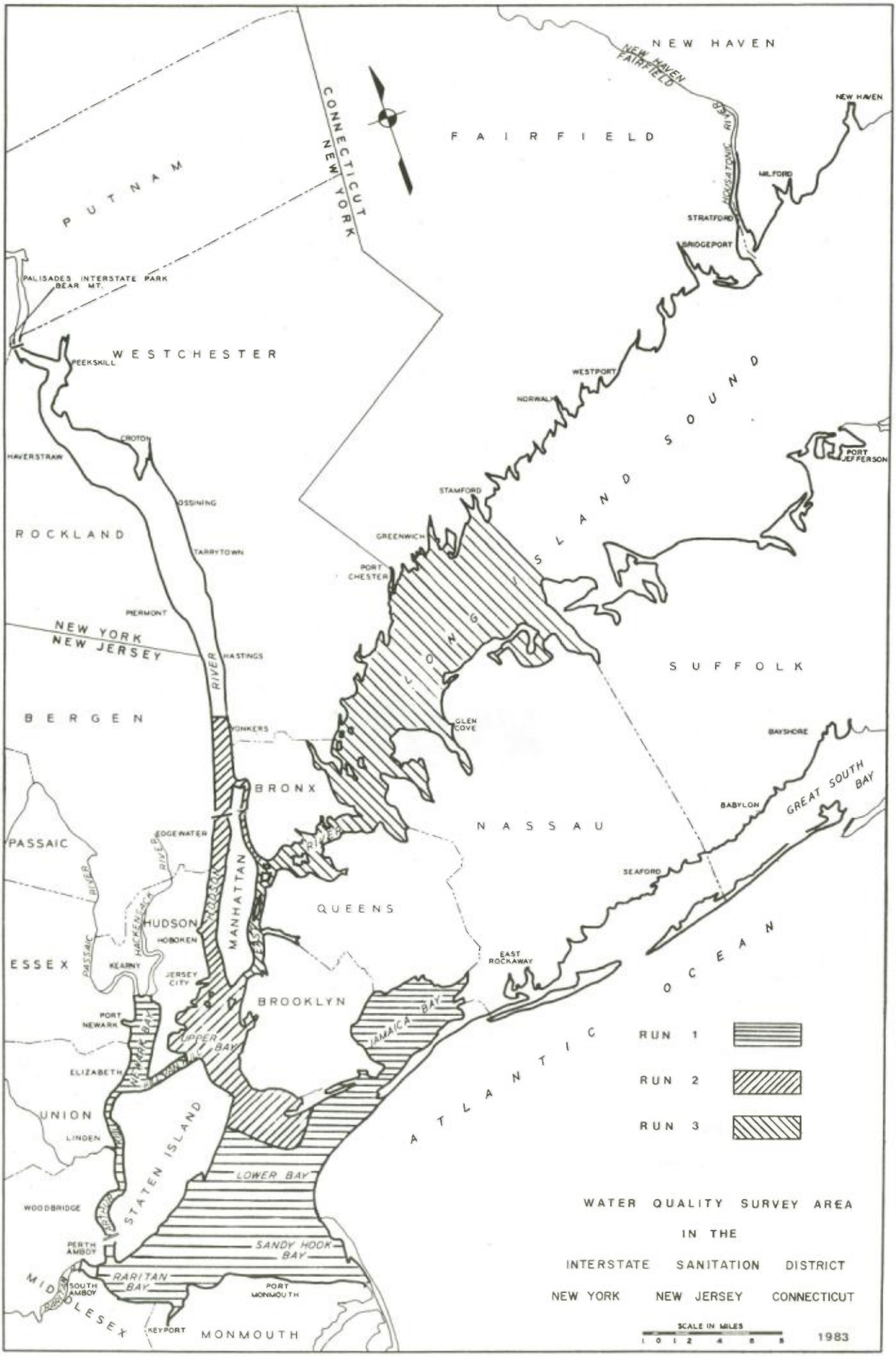
DISSOLVED OXYGEN REQUIREMENTS WERE MET

AT I.S.C. REMOTE AUTOMATIC WATER QUALITY MONITORING STATIONS

FOR THE PERIOD OF OCTOBER 1, 1982 THROUGH SEPTEMBER 30, 1983

| MONTH | STATION 1 AK/CE | STATION 2 ER/CE | STATION 4 RR/VB |
|---|---|---|---|
| October 1982 | 100.0 | 100.0 | 86.3 |
| November 1982 | 100.0 | 100.0 | 100.0 |
| December 1982 | 100.0 | 100.0 | 100.0 |
| January 1983 | 100.0 | 100.0 | 100.0 |
| February 1983 | 100.0 | 100.0 | 100.0 |
| March 1983 | 100.0 | - | - * |
| April 1983 | 100.0 | 100.0 | - |
| May 1983 | 100.0 | 100.0 | - |
| June 1983 | 100.0 | - * | - |
| July 1983 | - * | - | - |
| August 1983 | - | - | - |
| September 1983 | - | - | - |

NOTE: * Removed from service


NEW HAVEN
NEW HAVEN
FAIRFIELD
NEW HAVEN
FAIRFIELD
CONNECTICUT
NEW YORK
PUTNAM
HOUSATONIC RIVER
MILFORD
STRATFORD
BRIDGEPORT
PALISADES INTERSTATE PARK
BEAR MT.
WESTCHESTER
PEEKSKILL
WESTPORT
NORWALK
LONG ISLAND SOUND
PORT JEFFERSON
CROTON
HAVERSTRAW
OSSINING
STAMFORD
ROCKLAND
GREENWICH
TARRYTOWN
PORT CHESTER
PIERMONT
NEW YORK
NEW JERSEY
HASTINGS
RIVER
SUFFOLK
BERGEN
YONKERS
GLEN COVE
BAYSHORE
BRONX
GREAT SOUTH BAY
BABYLON
NASSAU
PASSAIC
EDGEWATER
SEAFORD
QUEENS
HUDSON
MANHATTAN
HOBOKEN
ESSEX
KEARNY
JERSEY CITY
EAST ROCKAWAY
ATLANTIC OCEAN
BROOKLYN
PORT NEWARK
UPPER BAY
JAMAICA BAY
ELIZABETH
UNION
LINDEN
STATEN ISLAND
LOWER BAY
WOODBRIDGE
SANDY HOOK BAY
PERTH AMBOY
RARITAN BAY
SOUTH AMBOY
PORT MONMOUTH
MIDDLESEX
KEYPORT
MONMOUTH
RUN 1
RUN 2
RUN 3
WATER QUALITY SURVEY AREA
IN THE
INTERSTATE SANITATION DISTRICT
NEW YORK NEW JERSEY CONNECTICUT
SCALE IN MILES
1 0 1 2 4 6 8
1983

INTERSTATE SANITATION COMMISSION
WATER QUALITY SAMPLING STATIONS - HELICOPTER RUN 1

| STATION | LATITUDE NORTH D M S | LONGITUDE WEST D M S | DESCRIPTION |
|---|---|---|---|
| AK-03 | 40-38-18 | 74-11-45 | At the center of & on the northside of the B&O R.R. Bridge |
| AK-07 | 40-35-35 | 74-12-22 | Middle of mouth of Rahway River & in line with shoreline along Tremley Reach |
| AK-13 | 40-33-02 | 74-15-00 | Mid-channel between Flashing Red Buoy #12 & Flashing Green, Black Buoy #1 |
| AK-18 | 40-30-24 | 74-15-34 | Mid-channel of Ward Point Bend (west) and opposite Perth Amboy Ferry Slip |
| AO-01 | 40-31-47 | 73-56-37 | Flashing Red R "2" Gong (4 sec.) |
| JB-03 | 40-37-37 | 73-53-00 | In channel 400 feet south of the end of Canarsie Pier |
| JB-05 | 40-35-45 | 73-48-40 | At center pier of bridge over Beach Channel - Hammels |
| JB-07 | 40-38-52 | 73-49-20 | At mouth of Bergen Basin, southeast of the sludge storage tank |
| LB-01 | 40-30-44 | 74-06-03 | 500 feet from Old Orchard Light in line with the beacon at Old Orchard Shore |
| NB-03 | 40-39-20 | 74-08-45 | Northside of C.R.N.J. Bridge over the Newark Bay South Reach Channel (mid-channel) |
| NB-12 | 40-41-57 | 74-07-10 | Newark Bay North Reach at mid channel northside of LVRR Bridge |
| RB-10 | 40-29-04 | 74-15-38 | Qk Fl G "3" Buoy |
| RB-14 | 40-28-01 | 74-11-18 | Buoy C "3" off Conaskonk Point at channel entrance to Keyport Harbor |
| RB-15 | 40-27-23 | 74-08-56 | Private Fl G Buoy "1" on Belvedere Beach Point Comfort |
| RB-16 | 40-30-16 | 74-09-46 | North side of Fl 4 sec 8M "20" Buoy located on northern boundary of Raritan Bay West Reach; off Huguenot Beach on Staten Island |
| RI-02 | 40-34-24 | 73-53-08 | Under center of bridge from Barran Island to Rockaway |
| RI-03 | 40-33-21 | 73-56-51 | Gong "9" Fl G 4 sec Buoy in Rockaway Inlet; northwest of Lookout Tower on Rockaway Point |

INTERSTATE SANITATION COMMISSION
WATER QUALITY SAMPLING STATIONS - HELICOPTER RUN 2

| STATION | LATITUDE NORTH D M S | LONGITUDE WEST D M S | D E S C R I P T I O N |
|---|---|---|---|
| HA-02 | 40-50-44 | 73-55-45 | Hamilton Bridge (middle bridge of 3) |
| HR-01 | 40-42-20 | 74-01-36 | Mid-channel of Hudson River<br>N-S: Line of black buoys<br>E-W: Fire Boat Pier (NY) and railroad pier (NJ) |
| HR-02 | 40-45-17 | 74-00-58 | Mid-channel of Hudson River<br>E-W: Heliport (NY) and Seatrain pier (NJ) |
| HR-03 | 40-47-41 | 73-59-09 | Mid-channel of Hudson River<br>E-W: Soldiers & Sailors Monument (NY) and circular apartment buildings (NJ) |
| HR-04 | 40-51-04 | 73-57-04 | Mid-channel of Hudson River under George Washington Bridge |
| HR-05 | 40-52-40 | 73-55-02 | Mid-channel of Spuyten Duyvil Creek under Henry Hudson Bridge |
| HR-07 | 40-56-51 | 73-54-27 | Mid-channel of Hudson River<br>E-W: Opposite Phelps Dodge (Yonkers) |
| LB-02 | 40-33-45 | 74-04-20 | B.W. Bell off Midland Beach |
| LB-03 | 40-34-03 | 73-59-00 | 200 feet south of Steeplechase Pier at Coney Island - N "2S" |
| LB-04 | 40-35-00 | 74-00-51 | 1/4 mile northeast of Norton Point, near the White Nun Buoy |
| NJ-08 | 40-31-28 | 74-02-07 | Buoy R "10S" Gong Fl R at northwest end of Swash Channel |
| UH-03 | 40-39-14 | 74-03-35 | Passaic Valley Outfalls<br>E-W: Robbins Reef Light and forward water tower on Naval Dock<br>N-S: Statue of Liberty and Black Bell Buoy #1-G |
| UH-11 | 40-39-05 | 74-05-10 | Located in the Kill Van Kull, in mid-channel & directly opposite Fl G & Black Buoy #3 |
| UH-13 | 40-36-26 | 74-02-45 | Middle of channel in Narrows under Verrazano Bridge |
| UH-21 | 40-40-23 | 74-02-28 | Main ship channel 10 yards to the west of Fl R Bell Buoy #30 |
| UH-22 | 40-38-25 | 74-02-50 | In mid-channel of Bay Ridge Channel<br>E-W: Flashing Red Beacon on 69th St. Ferry Dock (Brooklyn)<br>N-S: Fl G Bell Buoy #3 and Fl R Gong Buoy #22 |
| UH-29 | 40-42-17 | 73-59-54 | Mid-channel of East River in line with Pier #11 (Manhattan) and Pier #1 (Brooklyn) |

INTERSTATE SANITATION COMMISSION
WATER QUALITY SAMPLING STATIONS - HELICOPTER RUN 3

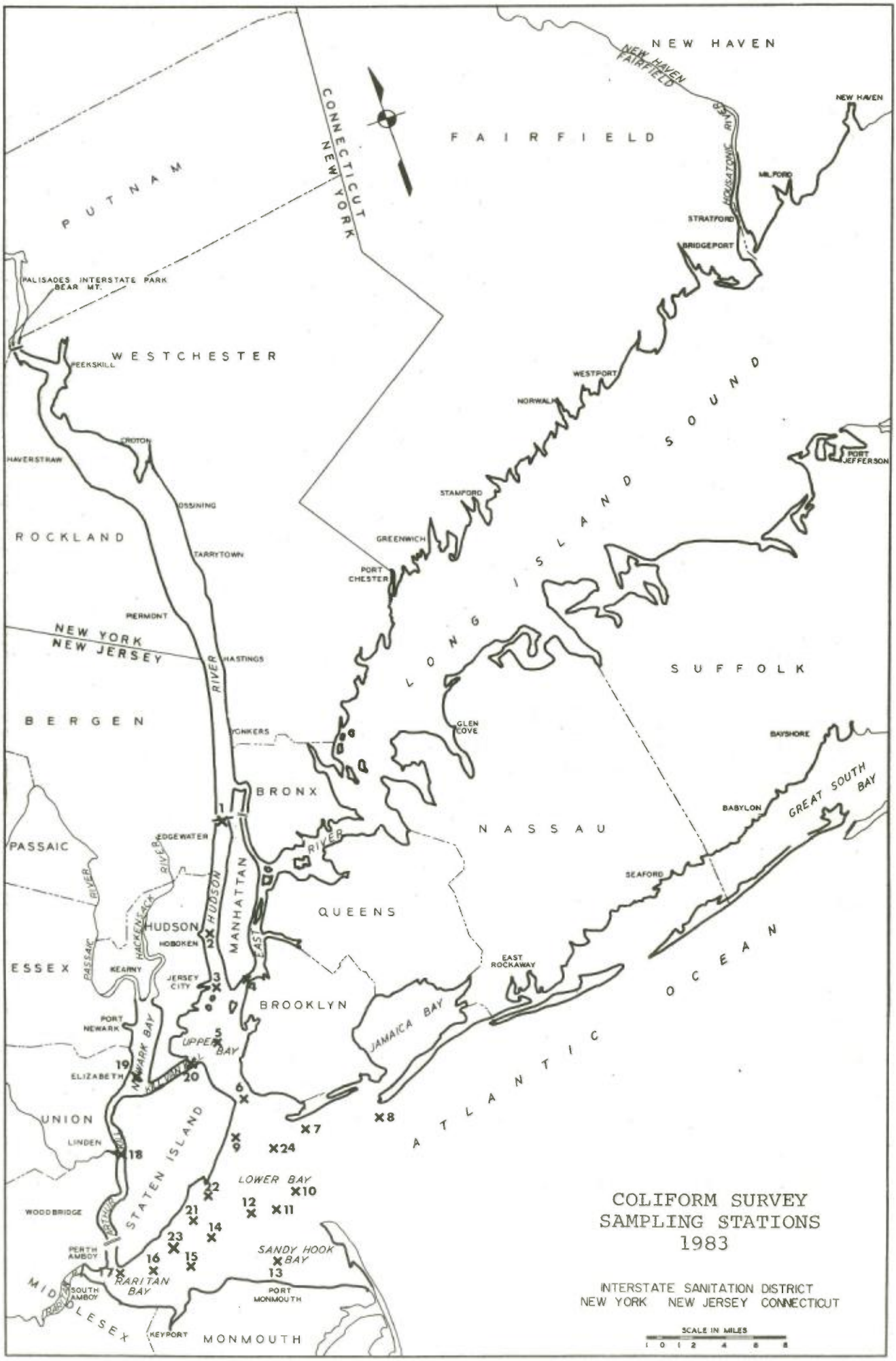
| STATION | LATITUDE NORTH D M S | LONGITUDE WEST D M S | DESCRIPTION |
|---|---|---|---|
| ER-02 | 40-42-48 | 73-58-20 | Under Williamsburg Bridge - mid-channel |
| ER-03 | 40-44-05 | 73-58-05 | Mid-channel of East River<br>E-W: Pier #73 (School Slip) Manhattan with open pier, foot of Greene Street, Brooklyn<br>N-S: Poorhouse Flats Range |
| ER-09 | 40-47-26 | 73-54-53 | Mid-channel of East River<br>E-W: Fl R Bell Beacon on Wards Island with tall stack on Con Edison's Astoria Plant |
| ER-11 | 40-47-50 | 73-52-02 | Mid-channel of East River<br>E-W: Fl R Beacon (College Point) with stack on Rikers Island<br>N-S: Line from center of Sanitation Pier (Hunts Point) with Fl R #4 Buoy (Station approximately 250 yards SE of #4 Buoy) |
| LI-15 | 40-47-58 | 73-47-38 | Middle of Throgs Neck Bridge |
| LI-17 | 40-49-43 | 73-46-46 | 500 yards off Stepping Stone, north of Fl G "12" M Horn |
| LI-19 | 40-51-33 | 73-45-03 | Off Bell "27" at Gang Way Rock |
| LI-24 | 40-53-57 | 73-44-27 | At New Rochelle outfall approximately 500 yards south of R "2" |
| LI-25 | 40-55-25 | 73-42-01 | Mamaroneck Fl 4 sec. Bell R "42" |
| LI-26 | 40-58-47 | 73-38-59 | Port Chester off N "2" |
| LI-27 | 41-00-08 | 73-36-04 | Captain's Harbor - Newfoundland Reef Fl R "4" |
| LI-28 | 40-59-42 | 73-33-58 | Greenwich Point R N "34" |
| LI-29 | 41-00-54 | 73-32-14 | Stamford between E int G 8M Horn & Fl R |
| LI-31 | 40-53-29 | 73-30-11 | Oyster Bay Gong "1" |
| LI-32 | 40-54-39 | 73-38-07 | Matinecock Pt. "21" Fl G 4 sec. Bell |
| LI-33 | 40-51-42 | 73-40-07 | Hempstead Harbor midway between R 6 Bell and Fl 4 sec. "1" |
| LI-34 | 40-50-00 | 73-44-02 | Manhasset Bay Fl G 4 sec. "1" |
| LI-35 | 40-59-33 | 73-28-53 | At the disposal site designated as WLIS III<br>N-S: Long Neck Point in Connecticut and Lloyd Point in New York |

cation. Shellfish harvesting is permitted from waters with this classification; however, the shellfish must be subject to relay or depuration before they can be sold commercially. Prior to 1981, with the exception of the Passaic Valley Sewerage Commissioners' Treatment Plant, all sewage treatment plants in New Jersey, within the Interstate Sanitation District, were required to disinfect on a year-round basis.

In 1981, the State of New Jersey amended its regulations to permit seasonal disinfection in the Interstate Sanitation District, except for those plants discharging to Raritan Bay, Sandy Hook Bay, and the Arthur Kill. At the request of the State of New Jersey, meetings were held among the Interstate Sanitation Commission, the State of New Jersey, the State of New York, the U.S. EPA, and the U.S. FDA. At these meetings, it was agreed that a special sampling study should be conducted in order to determine whether New Jersey's newly adopted seasonal disinfection policy would affect the Special Restricted waters in Raritan Bay and Sandy Hook Bay.

A cooperative study was undertaken by the agencies. The ISC supplied personnel to collect samples and performed the laboratory analyses for total and fecal coliforms. The U.S. EPA supplied a helicopter to collect the samples. When the U.S. EPA helicopter was not available, samples were collected using a commercially rented helicopter or boats supplied by the States of New York and New Jersey. The U.S. FDA provided guidance and background information helpful to conducting the study. The State of New York supplied a compilation of significant bypass events and disinfection interruptions at sewage treatment plants in New York City. In addition to this cooperative effort, the Bureau of Shellfish Control of the State of New Jersey undertook a sampling program in the Special Restricted waters of Raritan and Sandy Hook Bays.

A map and listing of the sampling stations for the cooperative program are on the following pages. Originally, Stations 1-20 were the stations chosen. Later on in the study, at the request of the State of New York, Stations 21, 22 and 23 were added because they are within the New York State Shellfish Harvesting Area. Station 24 was added by joint agreement of the participants in May 1983. The multiple tube fermentation technique was used to determine the Most Probable Number (MPN) of total and fecal coliforms using three dilutions and five tubes per dilution. To be in compliance with the National Shellfish Sanitation Program (NSSP) Manual of Operations, Special Restricted waters must meet the following criteria: the median total coliform MPN is not to exceed 700/100 ml with not more than 10% of the samples exceeding 2300 MPN per 100 ml, where the five tube dilution test is used. In all, twenty-one sampling runs were performed. Shown on the following pages are the disinfection requirements for New


NEW HAVEN
NEW HAVEN
FAIRFIELD
FAIRFIELD
NEW HAVEN
CONNECTICUT
NEW YORK
PUTNAM
HOUSATONIC RIVER
MILFORD
STRATFORD
BRIDGEPORT
PALISADES INTERSTATE PARK
BEAR MT.
WESTCHESTER
PEEKSKILL
WESTPORT
NORWALK
LONG ISLAND SOUND
CROTON
HAVERSTRAW
PORT JEFFERSON
STAMFORD
OSSINING
ROCKLAND
GREENWICH
TARRYTOWN
PORT CHESTER
PIERMONT
NEW YORK
NEW JERSEY
HASTINGS
RIVER
SUFFOLK
BERGEN
YONKERS
GLEN COVE
BAYSHORE
BRONX
BABYLON
GREAT SOUTH BAY
NASSAU
PASSAIC
EDGEWATER
RIVER
SEAFORD
HACKENSACK RIVER
HUDSON
MANHATTAN
EAST RIVER
QUEENS
HUDSON
HOBOKEN
ESSEX
PASSAIC RIVER
KEARNY
JERSEY CITY
EAST ROCKAWAY
BROOKLYN
PORT NEWARK
NEWARK BAY
UPPER BAY
JAMAICA BAY
ELIZABETH
ATLANTIC OCEAN
UNION
LINDEN
STATEN ISLAND
LOWER BAY
WOODBRIDGE
SANDY HOOK BAY
PERTH AMBOY
SOUTH AMBOY
RARITAN BAY
PORT MONMOUTH
MIDDLESEX
KEYPORT
MONMOUTH
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COLIFORM SURVEY
SAMPLING STATIONS
1983
INTERSTATE SANITATION DISTRICT
NEW YORK NEW JERSEY CONNECTICUT
SCALE IN MILES
1 0 1 2 4 6 8

INTERSTATE SANITATION COMMISSION
COLIFORM SURVEY SAMPLING STATIONS

| STATION | LATITUDE NORTH D M S | LONGITUDE WEST D M S | DESCRIPTION |
|---|---|---|---|
| SS-01 | 40-51-04 | 73-57-04 | Mid-channel of Hudson River under George Washington Bridge |
| SS-02 | 40-45-17 | 74-00-58 | Mid-channel of Hudson River<br>E-W: Heliport (NY) and Seatrain pier (NJ) |
| SS-03 | 40-42-20 | 74-01-36 | Mid-channel of Hudson River<br>N-S: Line of black buoys<br>E-W: Fire Boat Pier (NY) and railroad pier (NJ) |
| SS-04 | 40-42-17 | 73-59-54 | Mid-channel of East River in line with Pier #11 (Manhattan) and Pier #1 (Brooklyn) |
| SS-05 | 40-39-35 | 74-02-46 | In main ship channel 10 yards west of Flashing Red Bell Buoy #26 |
| SS-06 | 40-36-26 | 74-02-45 | Middle of channel in Narrows under Verrazano Bridge |
| SS-07 | 40-34-03 | 73-59-00 | 200 feet south of Steeplechase Pier at Coney Island - N "2S" |
| SS-08 | 40-31-47 | 73-56-37 | Flashing Red R "2" Gong (4 sec.) |
| SS-09 | 40-33-45 | 74-04-20 | B.W. Bell off Midland Beach |
| SS-10 | 40-31-28 | 74-02-07 | Buoy R "10S" Gong Fl R 4 sec; Northwest end of Swash Channel |
| SS-11 | 40-29-40 | 74-02-53 | Buoy Fl G 4 sec; Southern end of Chapel Hill South Channel |
| SS-12 | 40-29-03 | 74-04-42 | Buoy R "6" Fl R 2.5 sec Bell; Eastern end of Raritan Bay East Reach Channel |
| SS-13 | 40-27-27 | 74-04-20 | Buoy "1" Fl G 4 sec Bell; off Port Monmouth |
| SS-14 | 40-29-01 | 74-07-35 | Buoy "1" Fl 4 sec; off Point Comfort |
| SS-15 | 40-28-26 | 74-11-02 | Buoy "1" Fl G 2.5 sec; off Conaskonk Point |
| SS-16 | 40-28-36 | 74-13-33 | Fl G 4 sec, Boundary Light |
| SS-17 | 40-29-23 | 74-15-00 | Buoy "55" Fl G; off Ward Point, Staten Island |
| SS-18 | 40-35-35 | 74-12-22 | Middle of mouth of Rahway River & in line with shoreline along Tremley Reach |
| SS-19 | 40-39-20 | 74-08-45 | Northside of C.R.N.J. Bridge over the Newark Bay South Reach Channel (mid-channel) |
| SS-20 | 40-39-05 | 74-05-10 | Located in the Kill Van Kull, in mid-channel & directly opposite Fl G & Black Buoy #3 |
| SS-21 | 40-30-16 | 74-09-46 | North side of Fl 4 sec 8M "20" Buoy located on northern boundary of Raritan Bay West Reach; off Huguenot Beach on Staten Island |
| SS-22 | 40-31-18 | 74-07-56 | West side of Fl 4 sec 27 ft 6M Buoy approximately 1000 yards off Crookes Point at Great Kills on Staten Island |
| SS-23 | 40-29-25 | 74-11-40 | Midway between Fl 4 sec Buoy (SS-16) and Fl 4 sec 8M "20" Buoy (SS-21) and 2300 yards south of Seguine Point on Staten Island |
| SS-24 | 40-32-52 | 74-01-36 | Mid-channel of Ambrose Channel and midway between "15" Fl 4 sec Buoy and R "16" Fl R 4 sec Buoy |

Jersey and New York City sewage treatment plants in the Interstate Sanitation District during the sample period. A summary of the data collected at the sampling stations where shellfish harvesting is permitted is also included.

Although the number of samples is limited, some observations can be made about the data. With the exception of Station 15, which is in New Jersey waters, all stations in the Special Restricted waters are meeting the NSSP criteria for shellfish harvesting when disinfection is required throughout the Region. Station 15 did not meet the criteria because one of the six samples, or 16.7% of the values, exceeded the total coliform value of 2300 MPN per 100 ml. On a year-round basis, however, none of the three New Jersey stations met the NSSP criteria. The three stations in New York waters seem to be less affected by the seasonal disinfection policy than do the New Jersey stations. All three New York stations met the NSSP criteria on a year-round basis. None of the 18 stations sampled outside the shellfish harvesting areas in New York and New Jersey met the NSSP criteria for Special Restricted waters. Eleven of these 18 sampling stations were not in the Raritan Bay-Sandy Hook Bay-Lower Bay Complex; seven were in the aforementioned Complex but outside the shellfish harvesting areas. The seven stations in the Complex had median total coliforms ranging from 790-9200 MPN/100 ml while the eleven stations outside the Complex had median total coliforms ranging from 2950 through >24000 MPN/100 ml. Five of the stations outside the Complex had median total coliforms >24000 MPN/100 ml. These results are based on all the sampling data.

The results obtained during this sampling program are parallel to those obtained during the sampling conducted by the Bureau of Shellfish Control from the State of New Jersey. Twenty-nine of the stations which they sampled were located within the Special Restricted waters. During the period when disinfection was being practiced throughout the Region, all stations were in compliance with the NSSP criteria for Special Restricted waters. However, during the period when Regionwide disinfection was not being practiced, eighteen of the stations were not meeting the NSSP criteria for Special Restricted waters.

Although both data bases are small, the values obtained during the studies are in general agreement with each other. The results indicate that the Special Restricted waters in New Jersey are adversely affected when seasonal disinfection is practiced in New Jersey and New York. The stations in New York waters seem to be less affected by a seasonal disinfection policy and, from the limited data collected, are meeting the NSSP criteria year-round.

Presently, no conclusions can be drawn as to which treatment plants (in New Jersey or New York) should be required to disin-

DISINFECTION REQUIREMENTS
FOR
NEW JERSEY AND NEW YORK CITY SEWAGE TREATMENT PLANTS

| Plant | Disinfection Period |
|---|---|
| New Jersey | |
| Dischargers to Raritan Bay, Sandy Hook Bay and the Arthur Kill | Year-round |
| All other New Jersey dischargers in the Interstate Sanitation District | April 15 - October 15 |
| New York City | |
| Oakwood Beach Treatment Plant | Year-round |
| All other treatment plants in New York City | May 15 - September 30 |

1982-1983 SAMPLING RESULTS FOR STATIONS IN SPECIAL RESTRICTED SHELLFISH HARVESTING AREAS IN RARITAN BAY AND SANDY HOOK BAY *

| Station | Sampling Period ** | No. of Samples | Median of Total Coliforms (MPN/100 ml) | % of Samples with Total Coliforms >2300 MPN/100 ml |
|---|---|---|---|---|
| 13 (NJ) | 05/15 - 09/30 | 6 | 130 | 0.0 |
| | 04/15 -05/14, 10/01 - 10/15 | 3 | 1,700 | 33.3 |
| | 10/16 -04/14 | 12 | 490 | 16.7 |
| | All samples | 21 | 490 | 14.3 |
| 14 (NJ) | 05/15 - 09/30 | 6 | 180 | 0.0 |
| | 04/15 -05/14, 10/01 - 10/15 | 3 | 460 | 0.0 |
| | 10/16 -04/14 | 12 | 1,095 | 33.3 |
| | All samples | 21 | 330 | 19.0 |
| 15 (NJ) | 05/15 - 09/30 | 6 | 475 | 16.7 |
| | 04/15 -05/14, 10/01 - 10/15 | 3 | 790 | 0.0 |
| | 10/16 -04/14 | 12 | 330 | 33.3 |
| | All samples | 21 | 460 | 19.0 |
| 21 (NY) | 05/15 - 09/30 | 4 | 90 | 0.0 |
| | 04/15 -05/14, 10/01 - 10/15 | 1 | 80 | 0.0 |
| | 10/16 -04/14 | 9 | 330 | 11.1 |
| | All samples | 14 | 330 | 7.1 |
| 22 (NY) | 05/15 - 09/30 | 4 | 250 | 0.0 |
| | 04/15 -05/14, 10/01 - 10/15 | - | - | - |
| | 10/16 -04/14 | - | - | - |
| | All samples | 4 | 250 | 0.0 |
| 23 (NY) | 05/15 - 09/30 | 3 | 340 | 0.0 |
| | 04/15 -05/14, 10/01 - 10/15 | 1 | 490 | 0.0 |
| | 10/16 -04/14 | 9 | 330 | 0.0 |
| | All samples | 13 | 330 | 0.0 |

* National Shellfish Sanitation Program (NSSP) Manual of Operations total coliforms criteria for Special Restricted waters: median cannot exceed 700 MPN/100 ml with not more than 10% of the samples exceeding 2,300 MPN/100 ml for the 5 tube dilution test.

** See preceding table to determine disinfection policy in effect during sampling period.

fect on a year-round basis in order to keep the Special Restricted waters open for shellfishing throughout the year. The effects of combined sewers and regulator leakage may be playing a role in the wintertime which limits the effectiveness of treatment plant disinfection more than they do in the summertime because of slower coliform die-off rates resulting from colder water temperatures.

Work has begun to attempt to make a determination of the effect that each sewage treatment plant's disinfection practice has on the shellfish waters, as well as that of combined sewer overflows and regulator leakage. If this proves successful, it should be possible to set a disinfection policy within the Region to keep the shellfish areas in New Jersey and New York open on a year-round basis. However, the data indicate that New Jersey's and New York's present seasonal disinfection policies will not permit year-round shellfish harvesting by depuration from the Special Restricted waters in Raritan Bay and Sandy Hook Bay or by direct harvesting off the Rockaways.

## APPLICATIONS FOR REDUCED TREATMENT

The study of dissolved oxygen conditions in the waters of the New York Harbor Area, which was in progress at the close of 1982, was completed by the Commission early in 1983. A consultant provided dissolved oxygen levels predicted from mathematical model runs. The Commission then issued a report entitled "Dissolved Oxygen Assimilative Capacity in the New York Harbor Complex".

By the federally fixed deadline of December 29, 1982, twenty-five municipal and regional treatment plants in the New York and New Jersey portions of the Interstate Sanitation District applied for discharge permit modifications under Section 301(h) of the Clean Water Act. That statute allows the U.S. EPA to grant waivers of secondary treatment requirements and to set lesser effluent limitations, provided that a number of statutory criteria are met. The general thrust of these criteria is that an applicant must demonstrate that its discharges with reduced treatment would not adversely affect ability to meet applicable standards for receiving water quality. Section 301(h) also provides that the U.S. EPA may not process applications for waivers unless the state concurs. Within the Interstate Sanitation District, the procedures require concurrence from both the state DEC or DEP, as the case may be, and from the ISC.

As part of its process, the U.S. EPA asked the agencies involved to respond to two questions:

1. Did the applicant's proposal for treatment resulting in greater pollutant discharges conform to existing regulations?

2. Would discharges in accordance with a permit conforming to the applicant's application require other dischargers to increase their treatment in order to allow the receiving waters to meet applicable water quality standards?

Several of the applications were disallowed by the U.S. EPA for procedural reasons; twenty-two remained. The Commission denied its concurrence in each of the twenty-two instances, after considering each application individually.

However, it should also be pointed out that in its study, and in passing upon each application, the Commission took into account the regional character of the New York Harbor waterways. A great deal of interaction takes place among the waters as the result of tides, currents, and other factors. Consequently, the condition of the waterways as a whole and of localized areas within the Metropolitan Area water network are affected by the composites of contributions from multiple sources of contamination. Hence, it was not considered appropriate by the Commission

to consider the effects that each proposed discharge would have, if taken in isolation.

Upon receiving from the Commission their notifications of denial of concurrence, several of the applicants requested meetings with the Commission for further explanation and discussion. These meetings were held.

The environmental departments of both New York and New Jersey requested extensions of time to consider the applications made to them. The New York State Department of Environmental Conservation approved all but one application from communities in Nassau County. They denied all of the New York City applications, except for Newtown Creek. In the latter instance, the application had been withdrawn between the time of the ISC denial of concurrence and the NYS DEC action. An earlier application for Newtown Creek was still considered by the U.S. EPA to be subject to the possible submission by the City of New York of a revised application. Such a submission was made by the City in December 1983.

The New Jersey Department of Environmental Protection took the position that the applicants within its jurisdiction had made submissions on which it needed further information or guidance from the U.S. EPA. Moreover, New Jersey contended that since ISC had already denied concurrences, the issue was moot.

The ISC study of dissolved oxygen and available assimilative capacity gave some indication that it might be technically possible to meet applicable standards with less than secondary treatment during the cold weather months, although not during the summer season. The Commission undertook to examine further the possibility of seasonal treatment.

In all of the foregoing, it should be emphasized that the Commission's actions have been based primarily on dissolved oxygen conditions. This has been done because dissolved oxygen is one of the most basic parameters evidencing water quality. Without sufficient oxygen, waters cannot support some of the key uses for which they are classified, such as maintenance of fish life, nor can the ecosystem be maintained. Accordingly, it was considered unproductive to proceed further in assessing possible relaxation of treatment requirements affecting other parameters, if applications failed in respect to dissolved oxygen requirements. Nevertheless, the requirements of Section 301(h) also relate to other matters including toxics.

The work and analyses regarding the possiblity of seasonal treatment was made available to the Commission members in advance of the Quarterly Meeting held on December 7, 1983. The subject was discussed at that meeting. No action was taken looking to-

ward any change in the Commission's Water Quality Regulations.

The table on the following page shows the status of 301(h) applications in the Interstate Sanitation District.

STATUS OF 301(h) APPLICATIONS IN THE INTERSTATE SANITATION DISTRICT

| Applicant | Status of Initial Application | Current Status * |
|---|---|---|
| Bayonne (NJ) | Tentatively denied | L/I submitted |
| Belgrave (NY) | Tentatively denied | L/I submitted |
| Bowery Bay (NY) | Tentatively denied | L/I submitted |
| Cedarhurst (NY) | Tentatively denied | L/I submitted |
| Edgewater (NJ) | Tentatively denied | L/I submitted |
| Great Neck Village (NY) | Tentatively denied | L/I submitted |
| Hoboken (NJ) | Tentatively denied | L/I submitted |
| Hunts Point (NY) | Tentatively denied | L/I submitted |
| Jersey City East (NJ) | Tentatively denied | L/I submitted |
| Jersey City West (NJ) | Returned ** | Not applicable |
| Long Beach (NY) | Tentatively denied | L/I submitted |
| Mamaroneck (NY) | Tentatively denied | New application submitted |
| Middlesex County U.A. (NJ) | Tentatively denied | L/I submitted |
| Newtown Creek (NY) | Tentatively denied | New application submitted |
| North Bergen Central (NJ) | Returned ** | Not applicable |
| North Bergen Woodcliff (NJ) | Tentatively denied | L/I submitted |
| North River (NY) | Tentatively denied | L/I submitted |
| Oyster Bay (NY) | Tentatively denied | L/I submitted |
| Passaic Valley S.C. (NJ) | Tentatively denied | L/I submitted |
| Perth Amboy (NJ) | Not received *** | Not applicable |
| Port Washington (NY) | Tentatively denied | L/I submitted |
| Red Hook (NY) | Tentatively denied | L/I submitted |
| Secaucus (NJ) | Returned ** | Not applicable |
| Wards Island (NY) | Tentatively denied | L/I submitted |
| West Long Beach (NY) | Tentatively denied | L/I submitted |
| West New York (NJ) | Tentatively denied | L/I submitted |

* L/I submitted = Letter of intent to reapply has been submitted
** Did not meet 301(h) application criteria
*** Only letter of intent received; no application submitted

# III. AIR POLLUTION

## GENERAL

The Commission's air program involves studies of specific air pollutants and the investigation and coordination of interstate problems. During 1983 the Commission, at the request of the NYS DEC, conducted a preliminary benzene sampling study in the Pennsylvania Avenue Landfill and the Starrett City area of Brooklyn, New York. The study was to determine the levels of benzene at the aforementioned locations.

The Commission continued its participation in the proceeding before NYS DEC regarding the Consolidated Edison application to convert three of its generating units from oil- to coal-burning.

For the first time since 1973, the Commission called an "Air Stagnation Advisory" for the New Jersey-New York-Connecticut Air Quality Control Region (AQCR).

The Commission took part in several New York and New Jersey hearings having to do with various aspects of air quality programs. The Commission's written statements and/or recommendations on the particular subject matters (sulfur dioxide emissions, resource recovery, etc.) were submitted to the appropriate agencies.

During the past year, the Commission continued to provide air quality and stagnation advisory reports for use by its three member States. The data are currently received and disseminated to all three States.

The Commission continued its investigation of odor complaints, particularly on Staten Island. In August, the Commission found it necessary to reduce its air pollution field staff due to budgetary constraints.

## AMBIENT BENZENE SAMPLING STUDY

The Commission, at the request of the NYS DEC, conducted a preliminary ambient benzene sampling at the Pennsylvania Avenue Landfill and Starrett City in Brooklyn, New York. This study began on April 28, 1983 and lasted for two weeks. Air samples from four locations were collected in stainless steel tubes packed with Tenax. All samples were collected in duplicate in the mornings (approximately 10:30 a.m. to 12:30 p.m.). A one hour sampling period at each site at a rate of 200-300 ml/min was required to collect an appropriate volume of air for GC analyses. The volumes of air sampled varied from 13 to 19 liters, depending on the flow rates.

The average benzene concentration at the Pennsylvania Avenue Landfill, based on three samples analyzed, was found to be 6.0 ppb. On all three occasions, wind directions monitored at that site were predominately from southwest to west-southwest at an average speed of 8 mph.

The ground level benzene concentration in the Starrett City residential area averaged 2.2 ppb. A predominant northeasterly wind averaged 8 mph.

Samples from an elevated site in Starrett City and a background site showed no sign of benzene contamination, that is, the values were below the detection limit of 0.1 ppb. Corresponding wind directions and average wind speeds were north-northwest at 8 mph and north at 9 mph, respectively.

The sampling sties are described on the table on the following page.

Air samples at the elevated site (approximately 100 feet above ground level) on the roof of the Abe Stark Elementary School were taken on two different days. To determine the effects, if any, that rain might have on benzene levels at the elevated site, the first set of samples was collected on May 4, 1983 after an overnight rain wash. Benzene concentrations were found to be below the detection limit of 0.1 ppb. On May 6, 1983, after two days of dry weather, a second set of samples was taken at the same location. Benzene concentrations of these samples were also below the detection limit. Although the wind was blowing from the Starrett City area to the Landfill during sampling periods, the effects of an opposite wind direction on the measured benzene concentration at Starrett City are not expected to be substantial because the concentrations immediately above the Landfill were low.

Samples taken at the intersection of Walker and Vandalia Avenues (approximately 1.5 miles north of the Landfill and 1.0

SAMPLING SITES

| Site | Location | Topographical Description |
|---|---|---|
| A | Pennsylvania Avenue Landfill | 75 feet AGL* overlooking Starrett City, due North |
| B | Pennslyvania Avenue Landfill | 75 feet AGL* overlooking Starrett City, due North |
| C | Croton Loop | Residential Area in Starrett City within 0.7 miles of the Pennsylvania Avenue Landfill |
| D | 1400 Pennslyvania Avenue | On the Roof of the Abe Stark Elementary School in Starrett City, approx. 100 feet AGL*, within 0.4 miles of the Pennsylvania Avenue Landfill |
| E | Walker & Vandalia Avenues | On an open, grassy field outside of Starrett City, within 1.5 miles of the Pennsylvania Avenue Landfill |

* AGL - Above Ground Level

miles east of Starrett City) for background conditions revealed no detectable benzene.

Although not the purpose of this study, another aromatic hydrocarbon was found in samples taken at the Pennsylvania Avenue Landfill and Starrett City. Average toluene concentrations at the Landfill and Starrett City were found to range from 7.5 - 25.6 ppb and <0.1 - 3.9 ppb, respectively.

The Commission's laboratory analyses, based on the samples from the Pennsylvania Avenue Landfill and Starrett City, indicate that benzene concentrations at those locations were low. However, the limited number of samples taken may not have been sufficient to arrive at any definitive conclusion.

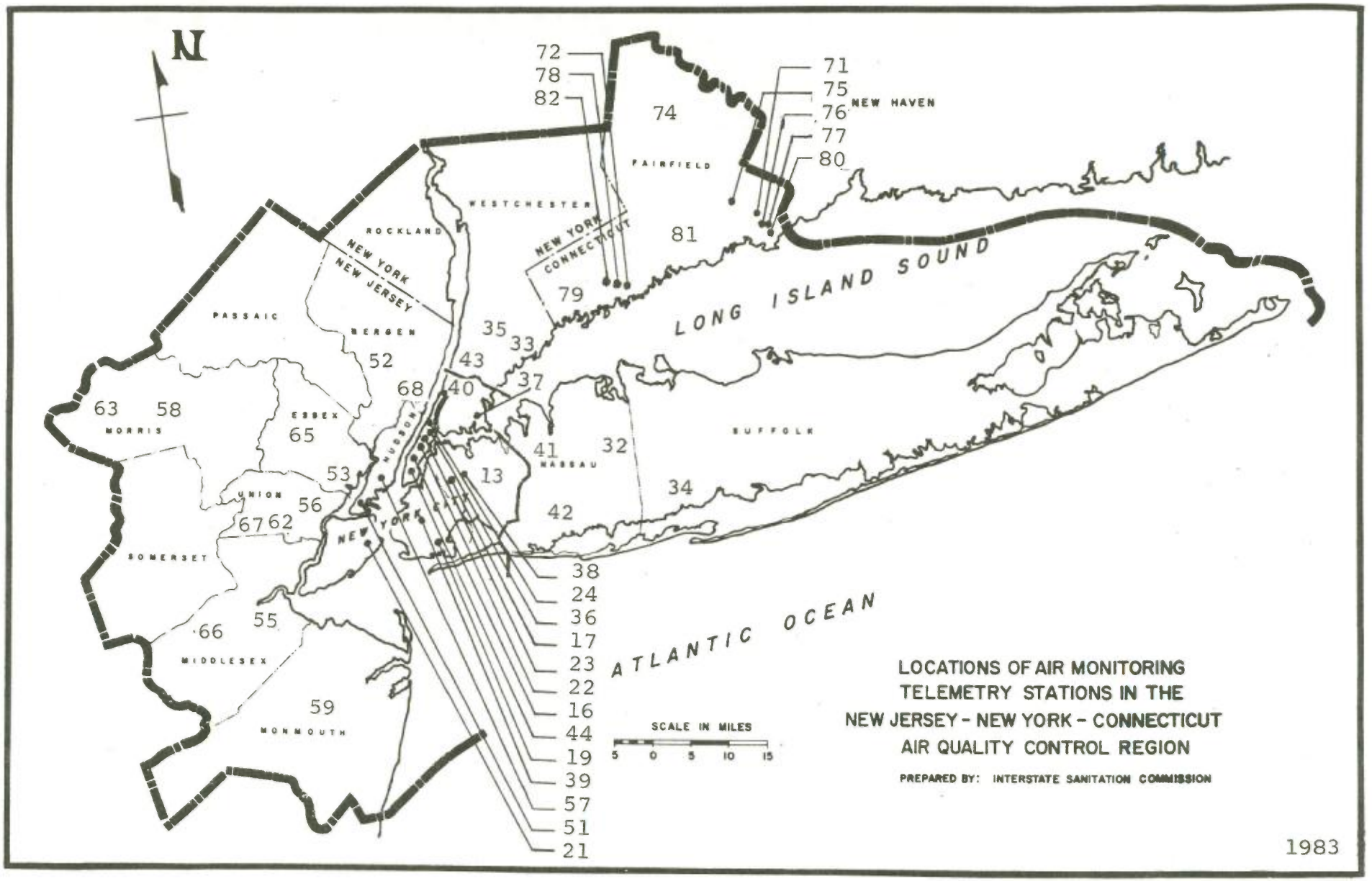
## REGIONAL AIR POLLUTION WARNING SYSTEM

The Interstate Sanitation Commission is the coordinator of the New Jersey-New York-Connecticut Air Quality Control Region's High Air Pollution Alert and Warning System. The Commission, based on stagnation advisory reports and/or contaminant concentrations, may call for activation of the System. Upon notification of the participating federal, state, and local agencies by the Commission that the System has been activated, data on pollutants are transmitted to and from the Commission using procedures agreed upon by all the participants.

In June 1983 the Commission, based on meteorological conditions forecast by the National Weather Service (NWS), called an "Air Stagnation Advisory" for the Air Quality Control Region. The Commission coordinated activities and; with the assistance and cooperation of NYS DEC, NJ DEP, and CT DEP; disseminated pollutant data to all participating agencies. The Advisory was terminated one week later based on meteorological conditions forecast by the NWS. This was the first time since 1973 that conditions warranted activation of the High Air Pollution Alert and Warning System. Pollutant levels remained below the standards as set in the System.

As a result of discontinuance of their Fort Totten weather station and manpower cutbacks, the National Weather Service is unable to devote the previously expended time and effort to the prepartion of daily stagnation forecasts. ISC and the member states of the AQCR agreed to have these forecasts for the NJ-NY-CT AQCR prepared by the NYS DEC.

There are 46 telemetry stations in operation in the NJ-NY-CT AQCR. A map and a list of the station locations are shown on the following pages.




LOCATIONS OF AIR MONITORING
TELEMETRY STATIONS IN THE
NEW JERSEY - NEW YORK - CONNECTICUT
AIR QUALITY CONTROL REGION

PREPARED BY: INTERSTATE SANITATION COMMISSION

1983

AIR MONITORING TELEMETRY STATIONS
IN THE
NEW JERSEY-NEW YORK-CONNECTICUT
AIR QUALITY CONTROL REGION

| ISC NO. | SITE OR CITY | COUNTY | STATE |
|---|---|---|---|
| 13 | Queens College | Queens | New York |
| 16 | Mabel Dean Bacon H.S. | New York | New York |
| 17 | Greenpoint | Kings | New York |
| 19 | Sheepshead Bay H.S. | Kings | New York |
| 21 | Susan Wagner H.S. | Richmond | New York |
| 22 | CCNY | New York | New York |
| 23 | 45th Street | New York | New York |
| 24 | Canal Steet | New York | New York |
| 32 | Eisenhower Park | Nassau | New York |
| 33 | Mamaroneck | Westchester | New York |
| 34 | Babylon | Suffolk | New York |
| 35 | White Plains | Westchester | New York |
| 36 | I.S. 45 | New York | New York |
| 37 | I.S. 155 | Bronx | New York |
| 38 | Woolsey Post Office | Queens | New York |
| 39 | P.S. 321 | Brooklyn | New York |
| 40 | P.S. 2 | Bronx | New York |
| 41 | Manhasset | Nassau | New York |
| 42 | Hewlett | Nassau | New York |
| 43 | Yonkers | Westchester | New York |
| 44 | World Trade Center | New York | New York |
| 51 | Bayonne | Hudson | New Jersey |
| 52 | Hackensack | Bergen | New Jersey |
| 53 | Newark | Essex | New Jersey |
| 55 | Perth Amboy | Middlesex | New Jersey |
| 56 | Elizabeth | Union | New Jersey |
| 57 | Jersey City | Hudson | New Jersey |
| 58 | Morristown | Morris | New Jersey |
| 59 | Freehold | Monmouth | New Jersey |
| 62 | Elizabeth | Union | New Jersey |
| 63 | Chester | Morris | New Jersey |
| 65 | East Orange | Essex | New Jersey |
| 66 | New Brunswick | Middlesex | New Jersey |
| 67 | Plainfield | Union | New Jersey |
| 68 | Cliffside Park | Bergen | New Jersey |
| 71 | Bridgeport | Fairfield | Connecticut |
| 72 | Stamford | Fairfield | Connecticut |
| 74 | Danbury | Fairfield | Connecticut |
| 75 | Stratford | Fairfield | Connecticut |
| 76 | Bridgeport | Fairfield | Connecticut |
| 77 | Bridgeport | Fairfield | Connecticut |
| 78 | Stamford | Fairfield | Connecticut |
| 79 | Greenwich | Fairfield | Connecticut |
| 80 | Bridgeport | Fairfield | Connecticut |
| 81 | Norwalk | Fairfield | Connecticut |
| 82 | Stamford | Fairfield | Connecticut |

## COAL RECONVERSIONS

Until 15 years ago, there was significant use of coal in this region as a fuel for the generation of electric power. Conversion to oil and natural gas occurred partly because of the greater convenience of those fuels and partly for regulatory reasons. The oil required to be burned during the 1970s was that of low sulfur content (0.3%). Increasing dependence on foreign oil from high priced and sometimes unstable sources of supply led to consideration of return to coal. While studies and permit proceedings to decide on reconversion were in progress, and in some cases for other installations as well, a number of exemptions from the 0.3% limitation were allowed.

The Commission's 1982 Annual Report recounted the course of a permit proceeding on applications of the Consolidated Edison Company for reconversion of its Arthur Kill Nos. 2 and 3 and Ravenswood No. 3 Units. The applicant proposed to burn 1.0% sulfur coal at these installations with electrostatic precipitators designed to 99.75% removal efficiency for particulate matter, but with no equipment to remove sulfur compounds from the emissions.

The end of 1982 saw the proceeding still in progress. The Commission continued its work as a party to the proceeding through the rebuttal and briefing stages which were not concluded until the middle of 1983.

On September 14, 1983, the New York State Commissioner of the Department of Environmental Conservation rendered his Decision. It offered the issuance of reconversion permits, but on the following conditions.

1. Installation and operation of electrostatic precipitators as proposed by the applicant;

2. Use of coal as a fuel, but only if flue gas desulfurization equipment effective to remove at least 90% of the sulfur from the emissions is installed and operated. In that event, up to 2.5% sulfur coal could be used;

3. All necessary permits for the coal burning were conditioned on the applicant first obtaining a permit for a suitable site for the disposal of the wastes from the coal burning and the required flue gas desulfurization processes.

The Report of the Hearing Officer, printed along with the Decision, also took specific note of a stipulation between the NYS DEC and the Commission that the requirements of the Commission's Water Quality Regulations would be included in any effluent discharge permits.

During the proceedings, a number of public agencies (including the States of New Jersey and Connecticut) took a variety of positions designed to limit emissions or to substitute conservation practices as a means of environmental protection.

The Commissioner of the New York State Department of Environmental Conservation in his Decision announced conditions for the permits which were the same as those advocated by the Interstate Sanitation Commission on the air and water quality issues. The Commission did not take positions on a number of other matters argued during the course of the proceeding because those did not pertain to its jurisdiction and responsibilities.

On December 13, 1983, Consolidated Edison filed a petition for reconsideration of its Ravenswood and Arthur Kill coal reconversion applications with the NYS DEC.

## AIR POLLUTION COMPLAINTS

In 1983 the Commission continued to respond to air pollution complaints. For the 12-month period ending September 30, 1983, the Commission received approximately 1150 odor complaints, almost exclusively from Staten Island. A table entitled "Distribution of Air Pollution Complaints By Community On Staten Island" is shown on the following page. It should be noted in the table that the category "all others" represents all communities from which ten or fewer odor complaints were reported. Odor descriptions were similar to those reported in previous years. The most common odors reported were: cat urine, burning plastic, gassy, garbage, sewage, sulfur, chemical, and dead fish.

### Field Office

The heavily industrialized area of the New York-New Jersey border in the vicinity of Staten Island, more than any other single area under the jurisdiction of the Commission, generates citizen complaints attributable to interstate transport of airborne pollutants. There are also many incidents which turn out to be from intrastate sources. Accordingly, the work of investigating complaints, especially for odors, is both continual and substantial.

In the past, investigation of such complaints had been based at the Commission's office at Columbus Circle in Manhattan. Since September 1982, however, the Commission has carried out its odor investigations predominantly from its Staten Island office. For the first eight months of 1983, the ISC field office was manned seven days a week. Due to budgetary constraints, effective September 1, 1983 the Staten Island office is now staffed only a total of five days per week during evenings and weekends.

DISTRIBUTION OF AIR POLLUTION COMPLAINTS BY COMMUNITY ON STATEN ISLAND FROM OCTOBER 1982 TO SEPTEMBER 1983

| COMMUNITY | ODOR COMPLAINTS | |
|---|---|---|
| | NUMBER | % OF TOTAL |
| Travis | 142 | 12.3 |
| Great Kills | 91 | 7.9 |
| Mariner's Harbor | 72 | 6.3 |
| Bull's Head | 66 | 5.7 |
| Eltingville | 64 | 5.6 |
| Huguenot | 61 | 5.3 |
| Tottenville | 61 | 5.3 |
| Annadale | 59 | 5.1 |
| Westerleigh | 53 | 4.6 |
| West New Brighton | 52 | 4.5 |
| New Springville | 48 | 4.2 |
| Willowbrook | 47 | 4.1 |
| Port Richmond | 39 | 3.4 |
| Arden Heights | 33 | 2.9 |
| Graniteville | 33 | 2.9 |
| Castleton Corners | 29 | 2.5 |
| Grymes Hill | 29 | 2.5 |
| Richmondtown | 21 | 1.8 |
| Rosebank | 17 | 1.5 |
| New Dorp | 14 | 1.2 |
| Sunnyside | 14 | 1.2 |
| Dongan Hills | 12 | 1.0 |
| New Brighton | 11 | 0.9 |
| All Others * | 84 | 7.3 |
| TOTALS | 1152 | 100.0 |

* Ten or fewer complaints reported per community.

WASTEWATER TREATMENT PLANTS
Discharging into the
INTERSTATE SANITATION DISTRICT WATERS
1 9 8 3

| Plant | ISC Receiving Water Classification | Date of Const. | Flow MGD Average | Flow MGD Design | Type of Treatment | Estimated Population Served (1971-83) |
|---|---|---|---|---|---|---|
| **CONNECTICUT** | | | | | | |
| *Fairfield County* | | | | | | |
| Bridgeport - East Side | B-1 | 1973+ | 15.3 | 24.0 | Secondary (AS) | 100,000 |
| - West Side | B-1 | 1973+ | 30.4 | 60.0 | Secondary (AS) | 175,000 |
| Fairfield | A | 1982+ | 8.4 | 9.0 | Secondary (AS) | 50,000 |
| Greenwich | A | 1964+ | 11.1 | 8.5 | Secondary (AS) | 35,000 |
| Norwalk | B-1 | 1980+ | 18.0 | 15.0 | Secondary (AS) | 58,000 |
| Stamford | B-1 | 1976+ | 25.3 | 20.0 | Secondary (AS) | 100,000 |
| Stratford | A | 1982+ | 8.2 | 11.5 | Secondary (AS) | 48,000 |
| Westport | A | 1975+ | 1.6 | 2.8 | Secondary (AS) | 12,000 |
| *New Haven County* | | | | | | |
| Milford - Beaver Brook | A | 1969 | 1.8 | 3.1 | Secondary (AS) | 10,000 |
| - Gulf Pond | A | 1976+ | 3.5 | 2.9 | Secondary (AS) | 16,000 |
| - Harbor | A | 1955+ | 0.5 | 0.5 | Secondary (AS) | 5,000 |
| - Town Meadows | A | 1953 | 1.9 | 1.2 | Secondary (AS) | 6,000 |
| New Haven - Boulevard | B-1 | 1969+ | 13.0 | 13.0 | Primary | 81,000 |
| - East Shore | B-1 | 1981+ | 11.3 | 40.0 | Secondary (AS) | 67,000 |
| - East Street | B-1 | 1967+ | 13.0 | 20.0 | Primary | 61,000 |
| West Haven | B-1 | 1972+ | 9.3 | 12.5 | Secondary (AS) | 70,000 |
| **NEW JERSEY** | | | | | | |
| *Bergen County* | | | | | | |
| Edgewater | B-1 | 1958+ | 2.8 | 3.0 | Primary | 21,000 |
| *Essex County* | | | | | | |
| Passaic Valley Sewerage Commissioners | B-1 | 1981+ | 230.1 | 300.0 | Secondary (AS) | 1,200,000 |
| *Hudson County* | | | | | | |
| Bayonne | B-2 | 1953 | 11.9 | 21.0 | Primary | 70,000 |
| Hoboken | B-1 | 1955 | 11.8 | 20.7 | Primary | 66,000 |
| Jersey City - East Side | B-1 | 1967+ | 30.8 | 46.6 | Primary | 156,000 |
| - West Side | B-2 | 1967+ | 21.5 | 36.0 | Primary | 115,000 |
| Kearny | B-2 | 1955 | 2.0 | 4.0 | Primary | 30,000 |
| West New York | B-1 | 1982+ | 6.4 | 10.0 | Primary | 39,000 |
| Woodcliff - North Bergen | B-1 | 1962 | 1.7 | 3.3 | Primary | 19,000 |
| *Middlesex County* | | | | | | |
| Carteret | B-2 | 1950 | - | 3.0 | Primary | 21,000 |
| Middlesex County Utilities Authority | A | 1978+ | 90.5 | 120.0 | Secondary (AS) | 525,000 |
| Old Bridge Township | A | 1962 | 1.1 | 1.4 | Primary | 12,000 |
| Perth Amboy | A | 1978+ | 3.5 | 10.0 | Primary | 39,000 |
| Rahway Valley Sewerage Authority | B-2 | 1973+ | 29.3 | 35.0 | Secondary (AS) | 215,000 |
| Sayreville - Melrose | A | 1947 | 0.08 | 0.15 | Primary | 2,000 |
| - Morgan | A | 1947 | 0.2 | 0.3 | Primary | 3,000 |
| South Amboy | A | 1930 | 0.8 | 0.9 | Primary | 9,000 |
| Woodbridge | B-2 | 1952 | 4.2 | 10.0 | Primary | 33,000 |
| *Monmouth County* | | | | | | |
| Atlantic Highlands | A | 1927 | 0.5 | 1.0 | Primary | 5,000 |
| Highlands | A | 1928 | 0.4 | 1.2 | Primary | 5,200 |
| *Union County* | | | | | | |
| Joint Meeting of Essex & Union Counties | B-2 | 1977+ | 64.1 | 75.0 | Secondary (AS) | 500,000 |
| Linden-Roselle Sewerage Authority | B-2 | 1982+ | 10.1 | 17.0 | Secondary (AS) | 61,000 |

WASTEWATER TREATMENT PLANTS
Discharging into the
INTERSTATE SANITATION DISTRICT WATERS
1 9 8 3

| Plant | ISC Receiving Water Classification | Date of Const. | Flow MGD Average | Flow MGD Design | Type of Treatment | Estimated Population Served (1971-83) |
|---|---|---|---|---|---|---|
| **NEW YORK** | | | | | | |
| **Nassau County** | | | | | | |
| Bay Park | A | 1960+ | 65.1 | 60.0 | Secondary (AS) | 558,000 |
| Belgrave Sewer District | A | 1973+ | 1.6 | 2.0 | Secondary (TF) | 12,000 |
| Cedar Creek | A | 1983+ | 38.2 | 45.0 | Secondary (AS) | 503,000 |
| Cedarhurst | A | 1968+ | 1.1 | 1.0 | Secondary (TF) | 8,000 |
| Cold Spring Harbor Laboratory* | A | 1975 | 0.04 | 0.075 | Physical/Chemical | 250 - 400 |
| Glen Cove | A | 1977+ | 3.6 | 8.0 | Secondary (AS) | 24,000 |
| Great Neck Sewer District | A | 1976+ | 2.6 | 2.7 | Secondary (TF) | 15,000 |
| Great Neck Village | A | 1968+ | 1.0 | 1.5 | Secondary (TF) | 9,000 |
| Inwood | A | 1961+ | 1.3 | 2.5 | Secondary (TF) | 7,000 |
| Jones Beach | A | 1952 | 0.1 | 2.5 | Secondary (TF) | Seasonal |
| Lawrence | A | 1967+ | 0.9 | 1.5 | Secondary (TF) | 6,000 |
| Long Beach | A | 1965+ | 6.5 | 6.4 | Secondary (BO) | 33,000 |
| Oyster Bay Sewer District | A | 1963+ | 1.6 | 1.5 | Secondary (TF) | 8,000 |
| Port Washington Sewer District | A | 1969+ | 3.2 | 3.0 | Secondary (TF) | 30,000 |
| Roslyn | A | 1965+ | 0.5 | 0.5 | Secondary (TF) | 5,000 |
| West Long Beach Sewer District | A | 1950+ | 1.1 | 1.5 | Secondary (TF) | 4,000 |
| **New York City** | | | | | | |
| **Bronx County** | | | | | | |
| Hunts Point | B-2 | 1978+ | 129.2 | 200.0 | Secondary (AS) | 895,000 |
| **Kings County** (Brooklyn) | | | | | | |
| Coney Island | A | 1958+ | 95.4 | 110.0 | Secondary (AS) | 690,000 |
| Newtown Creek | B-2 | 1967 | 288.4 | 310.0 | Secondary (AS) | 1,100,000 |
| Owls Head | B-1 | 1950 | 103.8 | 160.0 | Secondary (AS) | 785,000 |
| Red Hook | B-2 | ** | - | 60.0 | Secondary (AS) | 130,000 |
| 26th Ward | A | 1975+ | 64.5 | 85.0 | Secondary (AS) | 301,000 |
| **New York County** (Manhattan) | | | | | | |
| North River | B-1 | ** | - | 170.0 | Secondary (AS) | 741,000 |
| Wards Island | B-2 | 1978+ | 315.3 | 250.0 | Secondary (AS) | 1,300,000 |
| **Queens County** | | | | | | |
| Bowery Bay | B-2 | 1978+ | 139.8 | 150.0 | Secondary (AS) | 712,000 |
| Jamaica | A | 1977+ | 100.4 | 100.0 | Secondary (AS) | 585,000 |
| Rockaway | A | 1972+ | 23.8 | 45.0 | Secondary (AS) | 72,000 |
| Tallman Island | B-1 | 1972+ | 65.5 | 80.0 | Secondary (AS) | 465,000 |
| **Richmond County** (Staten Island) | | | | | | |
| Arthur Kill Correctional Facility* | B-2 | 1969 | 0.08 | 0.1 | Secondary (AS) | 1,000 |
| Elmwood Homes* | B-2 | 1978+ | 0.7 | 1.0 | Extended Aeration | 9,000 |
| Elmwood Park Condominiums* | B-2 | 1976 | 0.4 | 2.5 | Secondary (RD) | 4,000 |
| Heartland Village* | B-2 | 1968 | - | 1.0 | Extended Aeration | 7,000 |
| IS-7* | A | 1965 | - | 0.13 | Extended Aeration w/ Sand Filtration | 2,000 |
| Mount Loretto Home - Plant #1* | A | 1962 | - | - | Septic Tank | 500 |
| - Plant #2* | A | 1962 | - | - | Septic Tank | 200 |
| Oakwood Beach | A | 1979+ | 28.4 | 40.0 | Secondary (AS) | 286,000 |
| Port Richmond | B-2 | 1979+ | 42.4 | 60.0 | Secondary (AS) | 210,000 |
| Richmond Memorial Hospital* | A | 1936 | - | - | Septic Tank | 400 |
| Saint Joseph's School* | A | 1963 | - | 0.02 | Septic Tank with Sand Filtration | 1,000 |
| Village Green* | B-2 | 1970 | 0.5 | 1.0 | Extended Aeration | 5,000 |
| **Rockland County** | | | | | | |
| Joint Regional Sewerage Board-Town of Haverstraw | A | 1980+ | 5.0 | 8.0 | Secondary (AS) | 40,000 |

WASTEWATER TREATMENT PLANTS
Discharging into the
INTERSTATE SANITATION DISTRICT WATERS
1 9 8 3

| Plant | ISC Receiving Water Classification | Date of Const. | Flow MGD Average | Flow MGD Design | Type of Treatment | Estimated Population Served (1971-83) |
|---|---|---|---|---|---|---|
| NEW YORK (Continued) | | | | | | |
| Rockland County (Continued) | | | | | | |
| Orange & Rockland Utilities* | A | 1980+ | 0.003 | 0.0028 | Secondary (AS) | Industrial |
| Orangetown Sewer District | A | 1968+ | 7.2 | 8.5 | Secondary (TF) | 52,000 |
| Palisades Interstate Park | | | | | | |
| Bear Mountain Plant | A | 1967+ | 0.1 | 0.25 | Secondary (TF) | Seasonal |
| Tallman Mountain Plant | A | 1968 | 0.01 | 0.01 | Secondary (AS) | Seasonal |
| Rockland County Sewer District #1 | A | 1981+ | 17.9 | 10.0 | Secondary (AS) | 160,000 |
| Stony Point | A | 1969 | 1.1 | 1.0 | Secondary (AS) | 10,000 |
| Suffolk County | | | | | | |
| Huntington Sewer District | A | 1956+ | 2.0 | 2.5 | Secondary (TF) | 20,000 |
| Northport | A | 1973+ | 0.3 | 0.3 | Secondary (AS) | 3,000 |
| Suffolk County Sewer District #1 | A | 1974+ | 0.6 | 2.5 | Primary | 20,000 |
| Suffolk County Sewer District #3 | A | 1975 | 8.2 | 30.0 | Secondary (AS) | 300,000 |
| Suffolk County Sewer District #6 | A | 1974+ | 0.9 | 2.0 | Secondary (AS) | 6,000 |
| SUNY at Stony Brook* | A | 1974 | 1.4 | 2.5 | Primary | 10,000 |
| Westchester County | | | | | | |
| Blind Brook (Rye) | A | 1983+ | 2.9 | 5.0 | Secondary(AS) | 27,000 |
| Buchanan | A | 1962 | 0.2 | 0.55 | Secondary (AS) | 2,500 |
| Conrail Harmon Shop (Croton)* | A | 1980+ | 0.2 | 0.25 | Physical/Chemical | Industrial |
| Kings Ferry Sewer Association* | A | 1971 | 0.05 | 0.05 | Secondary (AS) | 500 |
| Mamaroneck | A | 1965+ | 14.8 | 17.0 | Primary | 77,000 |
| New Rochelle | A | 1982+ | 14.5 | 16.0 | Secondary (AS) | 75,000 |
| Ossining | A | 1981 | 4.5 | 7.5 | Secondary (AS) | 33,000 |
| Peekskill | A | 1979+ | 4.5 | 10.0 | Secondary (AS) | 35,000 |
| Port Chester | B-1 | 1964+ | 7.1 | 6.9 | Primary | 26,000 |
| Springvale Apartments Company* | A | 1957 | 0.1 | 0.1 | Secondary (TF) | 1,000 |
| Yonkers Joint Treatment | B-1 | 1977+ | 86.3 | 92.0 | Secondary (AS) | 500,000 |
| FEDERAL & MILITARY | | | | | | |
| Camp Smith - (Westchester Co.) | A | 1965 | - | 0.24 | Secondary (TF) | 2,000 |
| FDR Veterans Administration Medical Center (Westchester Co.) | A | 1982+ | 0.2 | 0.4 | Secondary (TF) | 3,000 |
| Gateway National Recreation Area (Floyd Bennett Field, Kings Co.) | A | 1981+ | 0.1 | 0.4 | Secondary (TF) | 1,000 |
| Military Ocean Terminal (Hudson Co.) | B-1 | 1982+ | 0.11 | 0.18 | Secondary (AS) | 3,000 |

NOTES:
+ Year of major additions or reconstruction
* Private or institutional sewage treatment plant
** Under construction
(AS) Activated Sludge
(TF) Trickling Filter
(RD) Rotating Disc
(BO) Biochemical Oxidation

# G L O S S A R Y

| | |
|---|---|
| AGL | above ground level |
| AQCR | air quality control region |
| BOD | biochemical oxygen demand |
| CCNY | City College of New York |
| CPS | characters per second |
| CSO | combined sewer overflow |
| DEC | Department of Environmental Conservation |
| DEF | Department of Environmental Facilities |
| DEP | Department of Environmental Protection |
| EPA | Environmental Protection Agency |
| FDA | Food and Drug Administration |
| GC | gas chromatograph |
| H.S. | high school |
| HCUA | Hudson County Utilities Authority |
| HVAC | heating, ventilating, and air conditioning |
| I/I | infiltration/inflow |
| I.S. | intermediate school |
| ISC | Interstate Sanitation Commission |
| MCUA | Middlesex County Utilities Authority |
| MGD | million gallons per day |
| mg/l | milligrams per liter |
| min | minute |
| ml | milliliters |
| mph | miles per hour |
| MPN | most probable number |
| MS | mass spectrophotometer |
| NPDES | National Pollutant Discharge Elimination System |
| N/SPDES | National/State Pollutant Discharge Elimination System |
| NSSP | National Shellfish Sanitation Program |
| NWS | National Weather Service |
| POTWs | publicly owned treatment works |
| ppb | parts per billion |
| ppm | parts per million |
| P.S. | public school |
| PVSC | Passaic Valley Sewerage Commissioners |
| SPDES | State Pollutant Discharge Elimination System |
| SSES | sewer system evaluation study |
| SUNY | State University of New York |
| VES | value engineering study |
| > | greater than |
| < | less than |