

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of)
)
CONSOLIDATED EDISON COMPANY OF)
NEW YORK, INC., and the) Docket No. 50-286
POWER AUTHORITY OF THE STATE OF)
NEW YORK)
(Indian Point Station Unit No. 3))

APPLICATION FOR AMENDMENT
TO OPERATING LICENSE

Consolidated Edison Company of New York, Inc.,
("Con Edison"), on its own behalf and as agent for Power
Authority of the State of New York, hereby requests that
Facility Operating License No. DPR-64 be amended by adding
a new subparagraph 2.E(3) as follows:

"(3) Subject to all of the foregoing provisions
of this Paragraph 2.E., the Nuclear Regulatory
Commission has determined, following review of
the document entitled "Economic and Environmental
Impacts of Alternative Closed-Cycle Cooling
Systems for Indian Point Unit No. 3" dated
January, 1976 that a closed-cycle natural
draft, wet cooling tower system is the preferred
alternative closed-cycle cooling system for
installation at Indian Point Unit No. 3."

In compliance with Paragraph 2.E.(1)(g) of Facility
Operating License No. DPR-64, and in support of this
Application, Con Edison submits a document entitled

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P PDR

"Economic and Environmental Impacts of Alternative Closed-Cycle Cooling Systems for Indian Point Unit No. 3." On the basis of the information set forth in that document, it has been determined that a natural draft, closed-cycle, wet cooling tower system would be the preferred system for installation at Indian Point Unit No. 3 if an alternative closed-cycle system is required.

CONSOLIDATED EDISON COMPANY
OF NEW YORK, INC.

By Carl L. Newman

Carl L. Newman
Vice President

Subscribed and sworn to
before me this 27TH day
of January, 1976.

Arthur Schiliro
Notary Public

ARTHUR SCHILIRO
Notary Public, State of New York
No. 30-4607935
Qualified in Nassau County
Commission Expires March 30, 1977

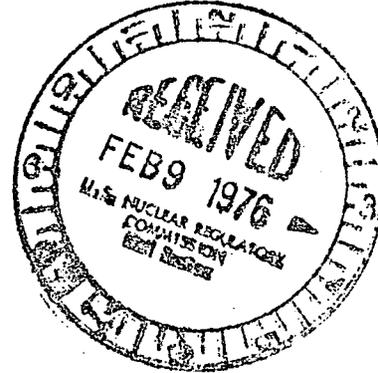
William J. Cahill, Jr.
Vice President

Consolidated Edison Company of New York, Inc.
4 Irving Place, New York, N Y 10003
Telephone (212) 460-3819

January 30, 1976

Mr. Ben C. Rusche, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Re: Docket Nos. 50-3
50-247
50-286



Dear Mr. Rusche:

In accordance with Section 5.6.1.2.A of the Environmental Technical Specification Requirements issued as Appendix B to Facility Operating License No. DPR-64, Con Edison submits herewith the progress report covering items a to m set forth in such section.

Sincerely yours,

William J. Cahill, Jr.

Enc.

cc: Mr. George W. Knighton
Frederic S. Gray, Esq.
Sarah Chasis, Esq.
C. John Clemente, Esq.
James P. Corcoran, Esq.
Nicholas A. Robinson, Esq.



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a. Effects of Chlorine and Other Chemical Discharges on the Ecosystem of the Hudson River

The New York University report entitled:

"The Effects of Temperature and Chlorine
on Entrained Hudson River Organisms
Progress Report for 1975"

is now in final preparation and will be filed with the Commission shortly. This report will include an analysis of the effects of chlorine on organisms entrained in the Indian Point cooling water flow and on those exposed to the diluted discharge plume. The report will discuss the results of tests with phytoplankton, zooplankton, ichthyoplankton and fish conducted under a variety of field and laboratory conditions closely simulating actual plant situations.

b. Effects of Reduction in Frequency of Chlorinations and Concentration of Free and Combined Chlorine on Plant Operation

From the start of the current period until mid September, special entrainment tests were being conducted by NYU which required chlorinations once per week. Accordingly, chlorinations were conducted once per week until September 18, 1975. At this time, it was decided to suspend chlorinations completely for the remainder of this period and attempt to determine the effect of this action through a program of routine condenser inspections.

Inspections showed no adverse effects on the condensers during the course of this period and chlorinations therefore were not performed for approximately 2½ months of the chlorination season. This experience will be evaluated toward making further reductions in frequency during the coming seasons. Chlorinations were automatically suspended on Dec. 2, 1975 when the river water temperature dropped below 45°F (End of chlorination season in accordance with the ETSR).

It was not practical to perform studies on reduced concentrations of chlorine due to the infrequent number of chlorinations.

c. Thermal Plume Model Verification and Mapping (Near and Far Field)

As indicated in the previous progress report (July 31, 1975) the thermal survey program initiated with the May, 1974 thermal survey has been completed with the May 1975 survey. The results of the May, June and July 1974 surveys were presented in reports submitted during prior semi-annual periods. A second July 1974 survey was conducted with the plant not operating during most of the time the temperature measurements were taken. The results were presented in the report,

"Indian Point Unit No. 2 Routine Monthly Thermal Monitoring", Report No. 3, July 1974, prepared by Consolidated Edison Company of New York, Inc.,

submitted with a letter dated September 4, 1975, from Mr. Carl L. Newman to Mr. George N. Knighton.

This survey was intended to ascertain natural temperature patterns in the Hudson River with little or no influence from the station's thermal discharge.

The results of the other surveys are being analyzed and will be presented in forthcoming reports for each survey.

d. Ecological Effects of Thermal Discharges

An evaluation of the effects of thermal discharges on entrainable organisms will be contained in the New York University report referred to in section "a" above.

Further discussions of the effects of thermal discharges will be presented in the Texas Instruments Incorporated report entitled:

"Hudson River Ecological Study
in the area of Indian Point
Thermal Effects Report"

which is in the final stages of preparation at this time.

This report will discuss the effects of the Indian Point thermal effluent on (1) the physical and chemical characteristics of the Hudson River in the immediate vicinity of Indian Point, (2) distribution and abundance of fishes, (3) community composition and relative abundance of benthic organisms, (4) tolerance and sensitivity of certain fishes to temperature changes, and (5) preferred temperatures of certain fishes.

e. Potential Reduction in Dissolved Oxygen Through the Plant

As indicated in the previous progress report (July 31, 1975) the Dissolved Oxygen program was completed with the May, 1975 Dissolved Oxygen (D.O.) measurements. As previously stated, there was no discernable difference between intake forebay and discharge canal D.O. measurements.

f. An Assessment of Performance of Fish Pumps as Installed

The results of the fish pump tests conducted during 1973 and 1974 are discussed in the Texas Instruments Incorporated report entitled:

"Indian Point Impingement Study Report
for the Period
1 January 1974 through 31 December 1974"

which was filed with the Commission on December 17, 1975.

The methodology employed in these fish pump tests is explained on pages IV-3 to IV-5, and the results of the tests are discussed on pages IV-8 and IV-9 of the above-named report.

No additional fish pump tests have been conducted during 1975.

g. Results of the General Ecological Survey

Results of the general ecological study program conducted during 1974 are contained in the Texas Instruments Incorporated report entitled:

"Hudson River Ecological Study
in the Area of Indian Point
1974 Annual Report"

which was filed with the Commission in conjunction with last semi-annual progress report on July 31, 1975.

Comparable studies being conducted during 1975 will be discussed in the 1975 Annual Report to be issued in 1976.

h. Ecological Effects of Entrainment of Organisms

(1) An analysis of the effects of entrainment of organisms at Indian Point in 1974 are contained in the New York University Report entitled:

"Hudson River Ecosystem Studies
Effects of Entrainment by the
Indian Point Power Plant on
Biota in the Hudson River Estuary -
Progress Report for 1974"

This report is now in the final stages of preparation and is expected to be available for submittal in March 1976.

- (2) In 1975, New York University conducted a study in an experimental flume to evaluate the significance of sampling net-induced mortality of entrainable organisms in calculating entrainment impacts.

The results of this study will be discussed in a special report being prepared by New York University entitled:

"Mortality of Striped Bass Eggs and Larvae in Nets".

- (3) The ecological effects of entrainment on populations of certain fish species is analyzed and discussed in the Texas Instruments Incorporated report entitled:

"The First Annual Report for the Multiplant
Impact Study of the Hudson River Estuary"

which was filed with the Commission as Supplement 2, Appendix D to the "Environmental Report to Accompany Application for Facility License Amendment for Extension of Operation With Once-Through Cooling for Indian Point Unit No. 2".

The major areas of investigation discussed in the Multiplant report were further examined in 1975. The results of this expanded effort are contained in the Texas Instruments Incorporated report entitled:

"1974 Year Class Report of the
Multiplant Impact Study
for the Hudson River Estuary"

which is in the final stages of preparation at this time. This report discusses additional analytical techniques which have been applied to provide further insight into the population dynamics of the key fish species.

i. Evaluation of Head Loss Across the Fixed Intake Screens as a Function of Velocity Through the Screens and Fish Collected

An evaluation of the relationship between head loss and approach velocities as they relate to fish impingement is presented in the Texas Instruments Incorporated report referred to in section "f" above.

The methodology used to evaluate this relationship is presented on pages III-2 through III-4, and the results of this evaluation are discussed on pages III-28 through III-34, of the above mentioned report.

j. Ecological Effects of Fish Impingement

An analysis and interpretation of the 1974 fish impingement data is presented in the Texas Instruments Incorporated report referred to in section "f" above.

The effects of impingement on populations of certain fish species is discussed in the Texas Instruments Incorporated 1974 Multiplant Report referred to in section "h" above (appendix F of that report addresses Impingement Direct Impact).

In addition, impingement impacts on fish populations will be contained in the Texas Instruments Incorporated 1974 Year-Class Report also referred to in section "h" above.

k. Operational Experience of Air Bubblers at Units Nos. 1 and 2 to Prevent Fish Impingement.

An evaluation of the relationship between air bubbler operation and fish impingement is contained in the Texas Instruments Incorporated report referred to in section "f" above.

The methodology used to explain this relationship is presented on pages IV-1 and IV-2, and the results of the evaluation are discussed on pages IV-5 and IV-6.

l. Other Ecological Effects

(a) The results of the 1974 Synoptic Subpopulation study are contained in the Texas Instruments Incorporated report entitled:

"Final Report of the Synoptic Subpopulation Analysis,
Phase I: Report on the Feasibility of Using
Innate Tags to Identify Striped Bass (Morone saxatilis)
from Various Spawning Rivers"

which was submitted to the Commission on October 22, 1975. This report provides a description of the various meristic and morphometric characters distinguishing striped bass of different spawning stocks.

Phase II of this study, being conducted at this time, will address the determination of the estuary of origin of striped bass obtained from the mid-Atlantic fishery.

- (b) A discussion of the results of the 1974 hatchery program is presented in the Texas Instruments Incorporated report entitled:

"Feasibility of Culturing and Stocking Hudson
River Striped Bass - 1974 Annual Report"

which was filed with the Commission on December 17, 1975.

- (c) The Texas Instruments Incorporated report on the effect of bluefish predation in the lower Hudson River on striped bass during 1973 and 1974 is now in final preparation and will be filed with the Commission shortly.
- (d) Texas Instruments Incorporated is preparing a discussion of the 1974-1975 Lower Estuary Study which was designed to complement the sampling effort associated with the Multiplant Impact Study of the Hudson River estuary. This discussion will be a part of the 1974 Year-Class Report referred to in section "h" above.
- (e) The results of a study undertaken to provide experimental information on the effect of water temperature on the rate of growth and development of the early life stages of the striped bass (Morone saxatilis) are contained in the University of Rhode Island report entitled:

"Life Stage Duration Studies On
Hudson River Striped Bass,
Morone Saxatilis (Walbaum).

which will be submitted to the Commission following finalization.

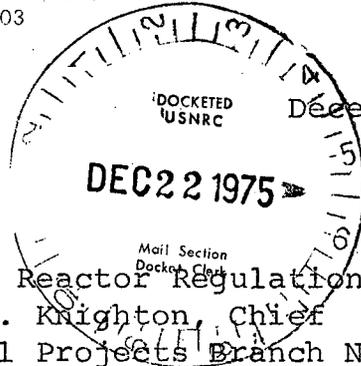
(m) Evaluation of Entrainment Data

A detailed evaluation and interpretation of entrainment data is contained in the New York University 1974 Progress Report (Item h-1 above), Net Mortality Report (Item h-2 above) and also in the Texas Instruments Incorporated Multiplant Impact Report (Item h-3 above) and 1974 Year Class Report (Item h-3 above).

William J. Cahill, Jr.
Vice President

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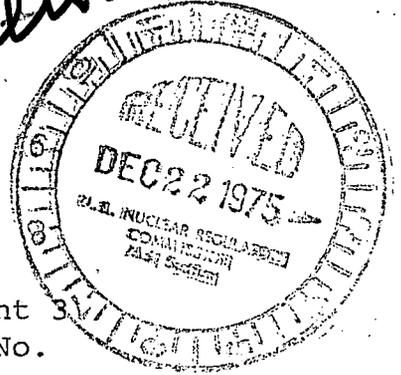
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December 17, 1975

lt. dtd 12-17-75

Director of Nuclear Reactor Regulation
ATTN: Mr. George W. Knighton, Chief
Environmental Projects Branch No. 1
Division of Reactor Licensing
United States Nuclear Regulatory Commission
Washington, D. C. 20555



Re: Indian Point 2 and Indian Point 3
Docket No. 50-247 and Docket No.
50-286

Dear Sir:

In accordance with our understanding for distribution of research reports, I enclose six copies of the following reports, prepared by Texas Instruments, Incorporated, with the distribution indicated on Attachment A:

- 1) Indian Point Impingement Study Report
For The Period 1 January 1974 Through
31 December 1974 - dated November 1975
- 2) Feasibility Of Culturing And Stocking
Hudson River Striped Bass 1974 Annual
Report - dated November 1975.

Very truly yours,

William J. Cahill, Jr.
William J. Cahill, Jr.

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Enc. (6) of (2)

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Attachment A

Distribution

REGULATORY DOCKET FILE COPY

copies

copies

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