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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

December 20, 1976

Posted
Am-3 to
DPR-64

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

Consolidated Edison Company
of New York, Inc.
ATTN: Mr. William J. Cahill, Jr.
Vice President
4 Irving Place
New York, New York 10003

Gentlemen:

The Commission has issued the enclosed Amendment No.13 to Provisional Operating License No. DPR-5 for the Indian Point Nuclear Generating Unit No. 1, Amendment No. 24 to Facility Operating License No. DPR-26 for Indian Point Nuclear Generating Unit No. 2, and Amendment No. 3 to Facility Operating License No. DPR-64 for Indian Point Nuclear Generating Unit No. 3. These amendments consist of changes to the Technical Specifications in response to your request dated February 24, 1976, and staff discussions.

The amendments revise the provisions of the Technical Specifications of each license to permit tests on various fish impingement mitigating measures at Indian Point Nuclear Generating Unit No. 1 intakes during the period when Unit No. 1 is shut down.

These fish impingement tests do not involve significant new safety information of a type not considered by a previous Commission safety review of the facility. They do not involve a significant increase in the probability or consequences of an accident, do not involve a significant decrease in a safety margin, and therefore do not involve a significant hazards consideration. We have also concluded that there is reasonable assurance that the health and safety of the public will not be endangered by these actions.

Please note that we have discontinued the use of separate identifying numbers for changes to the Technical Specifications for License No. DPR-5, Unit No. 1. (See Amendment No. 16 to License No. DPR-26 for Unit No. 2.) Sequential amendment numbers will be continued as in the past.

Copies of the related Environmental Impact Appraisal and the Federal Register Notice also are enclosed.

Sincerely,

Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors

Enclosures:
1. Amendment No. 13 to DPR-5
2. Amendment No. 24 to DPR-26
3. Amendment No. 3 to DPR-64
4. Environmental Impact Appraisal
5. Federal Register Notice

cc w/enclosures: See next page

Consolidated Edison Company
of New York, Inc.

cc w/enclosure(s):
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State Atomic Energy Council
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

DOCKET NO. 50-3

INDIAN POINT NUCLEAR GENERATING UNIT NO. 1

AMENDMENT TO PROVISIONAL OPERATING LICENSE

Amendment No. 13
License No. DPR-5

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Consolidated Edison Company of New York, Inc. (the licensee) dated February 24, 1976, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and Paragraph 3.B. of Facility License No. DPR-5 is hereby amended to read as follows:

"B. Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications."

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors

Attachment:
Changes to the Technical
Specifications

Date of Issuance: December 20, 1976

ATTACHMENT TO LICENSE AMENDMENT NO. 13

PROVISIONAL OPERATING LICENSE NO. DPR-5

DOCKET NO. 50-3

Replace the existing pages of the Appendix B Technical Specifications listed below with the attached revised pages bearing the same numbers. Changes on these pages are shown by marginal lines.

Pages

2-14

4-35

4-48

Specification (Cont'd)

Unit No. 2 or Unit No. 1 shall not exceed 2.25 fps. This specification shall not apply to Unit 1 during the submerged Weir Feasibility Study. When the daily (24-hour) average site river water temperature is less than 40°F the area average approach and the intake velocity shall be reduced to approximately 60% of the maximum full flow conditions of 870,000 gpm through the Unit No. 2 intake system and 318,000 gpm through the Unit No. 1 intake system. The adjustment in the two types of velocities will be made within one week after the 24-hour average site river water temperature reaches below 40°F. The flow rate will be restricted to 534,000 gpm through Unit No. 2 without the deicing loop operating and 374,000 gpm with the deicing loop operating during the winter time. All changes in flow rate shall be logged and reported in the Annual Environmental Operating Report.

Bases

The withdrawal of cooling water from the Hudson River through the outer protective screens may cause damage to aquatic biota by impingement on these screens. Fish collections have been experienced at the Indian Point Unit No. 1 intake screens and at Unit No. 2 during testing of the circulating water pumps. Information indicates that by maintaining the approach velocity at one (1) foot per second (fps) and the intake velocity to 2.25 fps or less, this problem should be significantly reduced.

Specification (Cont'd)

flow rate are made, the site river water temperature(s) in front of the intake structure shall also be measured and recorded. Adjustments in the flow rate shall be described and reported in the Annual Environmental Operating Report including the above mentioned information.

Bases

At present the approach and intake velocities through the outer fixed screens are being calculated and recorded depending on the flow rate through each intake system. The licensee shall devise a procedure to measure the velocity or current, or pressure head through the forebay of the intake system so as to verify the actual velocity (linear or volumetric) through the traveling screens. When the outer fixed screens are pulled up

the impinged fish population shall be performed to estimate species number, size and weight. Such subsampling will consist of measuring and weighing at least 10% of the total impinged population of each species. Species selected for subsampling will be representative of the range of sizes collected in the trash basket. The monitoring program shall consist of washing down the fixed screens at least once per day and running all travelling screens approximately 15-30 minutes during each 8-hour shift. The estimated number and species of fish washed off the fixed screens which do not enter the forebay shall be estimated each day and recorded separately. Running the travelling screens at the time the fixed screens are raised and backwashed shall be carried out.

(ii) If the number of fish of all sizes and species killed exceeds 5000 per day for three consecutive days or the number of fish of all sizes killed in a single day exceeds 15,000, immediate corrective action shall be taken to reduce the number killed to below these levels. This shall not apply at Unit 1 using the Submerged Weir Feasibility Study.

(iii) The causes of fish impingement shall be evaluated, including the magnitude of the approach or intake velocity. During the first 180 days after issuance of an operating license for steady-state power, the water velocity profile across the fixed screens shall be characterized in a manner similar to that provided by the licensee in testimony in the ASLB hearing (Reference 4.1-23). Velocity determinations shall be made at full flow and reduced flow and shall include measurements from at least four intake forebays, one forebay area at the north and one at the south, and two in the middle of the intake structure. Measurement at each forebay shall be made as close as possible to the outer fixed screens and include at least four determinations over a tidal cycle (high and low tide shall be included). The results of the velocity profile study shall be submitted in the first semi-annual operating report for Unit No. 2 operation and shall include a detailed description of the study, methodology, procedures used, results and locations of the effects on the fishery.

(iv) Operational experience of the air bubbler to prevent fish from being attracted to the intake screens and the effectiveness to reduce impingement by other fish protection devices shall be documented and evaluated in the semi-annual operating report. Operating procedures shall be developed for air bubblers to obtain the optimum mode of performance for meeting the intended purposes of keeping fish away from the intake screens.

(v) A study of the effectiveness of a submerged weir in reducing impingement is to be performed as described in References 4.1-26 and 4.1-27. The NRC shall be notified within 24 hours of initiation of the test. The maximum duration of it shall be 180 days. The tasks (Task 1 and Task 2) in Reference 4.1-26 a do not apply and are replaced by the following:

Task - Monitor fish impingement at Unit No. 1 for twenty three-day periods (60 days total), alternating periods with and without partially blocked intakes. The flow rate through Unit No. 1 intake shall be maintained constant during the study. The study will be terminated prior to 180 days only if the data collected show that the blockage is not effective in reducing impingement, or if the total number of fish impinged on any one day exceeds 6,000. Fish impingement shall be monitored in accordance with Environmental Technical Specifications.

References (cont'd)

4.1-19 Warren, C. E., and Davis, G. E., "Laboratories Studies on the Feeding, Bioenergetics, and Growth of Fish," The Biological Basis of Freshwater Fish Production, p. 175, Shelby D. Gerkin (ed.), Blockwell, Oxford (1967).

4.1-20 Testimony of Gerald J. Lauer, Ph.D., New York University, "Effects of Indian Point Units 1 and 2 Operation on Hudson River Biota", October 30, 1972, Docket No. 50-247.

4.1-21 Appendix V-3,"Entrainment of Larval Striped Bass,"Final Environmental Statement, September 1972.

4.1-22 Dr. C. P. Goodyear, "Mathematical Model Used by the Staff to Estimate the Effect of Indian Point Units 1 and 2 Entrainment on Hudson River Striped Bass," February 22, 1973.

4.1-23 R. A. Alevras, "The Estimation of Fish Impingement at Indian Point Units Nos. 1 and 2, February 5, 1973.

4.1-24 Applicant's Proposed Findings of Fact and Conclusions of Law in the form of a Proposed Initial Decision for a Full-Term, Full-Power Operating License for Indian Point Station, Unit No. 2, Docket No. 50-247, May 17, 1973, p. 132.

4.1-25 Affidavit of Harry C. Woodbury, Jr., "Applicant's Motion for Insurance of a License Authorizing Limited Operation," July 27, 1973.

4.1-26 Attachment A of letter from LeBoeuf, Lamb, Lieby & MacRae to B. Rusche dated February 24, 1976.

4.1-27 Letter from W. Cahill to G. Knighton dated May 18, 1976.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

DOCKET NO. 50-247

INDIAN POINT NUCLEAR GENERATING UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 24
License No. DPR-26

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Consolidated Edison Company of New York, Inc. (the licensee) dated February 24, 1976, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors

Attachment:
Changes to the Technical
Specifications

Date of Issuance: December 20, 1976

ATTACHMENT TO LICENSE AMENDMENT NO. 24

FACILITY OPERATING LICENSE NO. DPR-26

DOCKET NO. 50-247

Replace the existing pages of the Appendix B Technical Specifications listed below with the attached revised pages bearing the same numbers. Changes on these pages are shown by marginal lines.

Pages
2-14
4-35
4-48

Specification (Cont'd)

Unit No. 2 or Unit No. 1 shall not exceed 2.25 fps. This specification shall not apply to Unit 1 during the submerged Weir Feasibility Study. When the daily (24-hour) average site river water temperature is less than 40°F the area average approach and the intake velocity shall be reduced to approximately 60% of the maximum full flow conditions of 870,000 gpm through the Unit No. 2 intake system and 318,000 gpm through the Unit No. 1 intake system. The adjustment in the two types of velocities will be made within one week after the 24-hour average site river water temperature reaches below 40°F. The flow rate will be restricted to 534,000 gpm through Unit No. 2 without the deicing loop operating and 374,000 gpm with the deicing loop operating during the winter time. All changes in flow rate shall be logged and reported in the Annual Environmental Operating Report.

Bases

The withdrawal of cooling water from the Hudson River through the outer protective screens may cause damage to aquatic biota by impingement on these screens. Fish collections have been experienced at the Indian Point Unit No. 1 intake screens and at Unit No. 2 during testing of the circulating water pumps. Information indicates that by maintaining the approach velocity at one (1) foot per second (fps) and the intake velocity to 2.25 fps or less, this problem should be significantly reduced.

Specification (Cont'd)

flow rate are made, the site river water temperature(s) in front of the intake structure shall also be measured and recorded. Adjustments in the flow rate shall be described and reported in the Annual Environmental Operating Report including the above mentioned information.

Bases

At present the approach and intake velocities through the outer fixed screens are being calculated and recorded depending on the flow rate through each intake system. The licensee shall devise a procedure to measure the velocity or current, or pressure head through the forebay of the intake system so as to verify the actual velocity (linear or volumetric) through the traveling screens. When the outer fixed screens are pulled up

the impinged fish population shall be performed to estimate species number, size and weight. Such subsampling will consist of measuring and weighing at least 10% of the total impinged population of each species. Species selected for subsampling will be representative of the range of sizes collected in the trash basket. The monitoring program shall consist of washing down the fixed screens at least once per day and running all travelling screens approximately 15-30 minutes during each 8-hour shift. The estimated number and species of fish washed off the fixed screens which do not enter the forebay shall be estimated each day and recorded separately. Running the travelling screens at the time the fixed screens are raised and backwashed shall be carried out.

(ii) If the number of fish of all sizes and species killed exceeds 5000 per day for three consecutive days or the number of fish of all sizes killed in a single day exceeds 15,000, immediate corrective action shall be taken to reduce the number killed to below these levels. This shall not apply at Unit 1 using the Submerged Weir Feasibility Study.

(iii) The causes of fish impingement shall be evaluated, including the magnitude of the approach or intake velocity. During the first 180 days after issuance of an operating license for steady-state power, the water velocity profile across the fixed screens shall be characterized in a manner similar to that provided by the licensee in testimony in the ASLB hearing (Reference 4.1-23). Velocity determinations shall be made at full flow and reduced flow and shall include measurements from at least four intake forebays, one forebay area at the north and one at the south, and two in the middle of the intake structure. Measurement at each forebay shall be made as close as possible to the outer fixed screens and include at least four determinations over a tidal cycle (high and low tide shall be included). The results of the velocity profile study shall be submitted in the first semi-annual operating report for Unit No. 2 operation and shall include a detailed description of the study, methodology, procedures used, results and locations of the effects on the fishery.

(iv) Operational experience of the air bubbler to prevent fish from being attracted to the intake screens and the effectiveness to reduce impingement by other fish protection devices shall be documented and evaluated in the semi-annual operating report. Operating procedures shall be developed for air bubblers to obtain the optimum mode of performance for meeting the intended purposes of keeping fish away from the intake screens.

(v) A study of the effectiveness of a submerged weir in reducing impingement is to be performed as described in References 4.1-26 and 4.1-27. The NRC shall be notified within 24 hours of initiation of the test. The maximum duration of it shall be 180 days. The tasks (Task 1 and Task 2) in Reference 4.1-26 a do not apply and are replaced by the following:

Task - Monitor fish impingement at Unit No. 1 for twenty three-day periods (60 days total), alternating periods with and without partially blocked intakes. The flow rate through Unit No. 1 intake shall be maintained constant during the study. The study will be terminated prior to 180 days only if the data collected show that the blockage is not effective in reducing impingement, or if the total number of fish impinged on any one day exceeds 6,000. Fish impingement shall be monitored in accordance with Environmental Technical Specifications.

References (cont'd)

4.1-19 Warren, C. E., and Davis, G. E., "Laboratories Studies on the Feeding, Bioenergetics, and Growth of Fish," The Biological Basis of Freshwater Fish Production, p. 175, Shelby D. Gerkin (ed.), Blockwell, Oxford (1967).

4.1-20 Testimony of Gerald J. Lauer, Ph.D., New York University, "Effects of Indian Point Units 1 and 2 Operation on Hudson River Biota", October 30, 1972, Docket No. 50-247.

4.1-21 Appendix V-3, "Entrainment of Larval Striped Bass," Final Environmental Statement, September 1972.

4.1-22 Dr. C. P. Goodyear, "Mathematical Model Used by the Staff to Estimate the Effect of Indian Point Units 1 and 2 Entrainment on Hudson River Striped Bass," February 22, 1973.

4.1-23 R. A. Alevras, "The Estimation of Fish Impingement at Indian Point Units Nos. 1 and 2, February 5, 1973.

4.1-24 Applicant's Proposed Findings of Fact and Conclusions of Law in the form of a Proposed Initial Decision for a Full-Term, Full-Power Operating License for Indian Point Station, Unit No. 2, Docket No. 50-247, May 17, 1973, p. 132.

4.1-25 Affidavit of Harry G. Woodbury, Jr., "Applicant's Motion for Insurance of a License Authorizing Limited Operation," July 27, 1973.

4.1-26 Attachment A of letter from LeBoeuf, Lamb, Lieby & MacRae to B. Rusche dated February 24, 1976.

4.1-27 Letter from W. Cahill to G. Knighton dated May 18, 1976.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

POWER AUTHORITY OF THE STATE OF NEW YORK

DOCKET NO. 50-286

INDIAN POINT NUCLEAR GENERATING UNIT NO. 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 3
License No. DPR-64

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Consolidated Edison Company of New York, Inc. and the Power Authority of the State of New York (the licensees) dated February 24, 1976, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors

Attachment:
Changes to the Technical
Specifications

Date of Issuance: December 20, 1976

ATTACHMENT TO LICENSE AMENDMENT NO. 3

FACILITY OPERATING LICENSE NO. DPR-64

DOCKET NO. 50-286

Revise the Appendix B Technical Specifications as follows:

Remove pages	Insert pages
2.2-1	2.2-1
4.1-16	4.1-16
4.1-20	4.1-20
4.1-22	4.1-22
	4.1-22a
4.1-31	4.1-31
4.1-38	4.1-38

Changes on these pages are shown by marginal lines.

2.2 HYDRAULICS OF CIRCULATING WATER SYSTEM (CWS)

3.2 HYDRAULICS OF CIRCULATING WATER SYSTEM (CWS)

Applicability

Applies to the mode of operation of the circulating water system (CWS).

Applicability

Applies to the recording and measurement of the operating characteristics of the intake and discharge system.

Objective

To define the limiting conditions for operation of the CWS.

Objective

To monitor and record the limiting conditions for operation of the CWS.

2.2.1 Approach and Intake Velocities

3.2.1 Approach and Intake Velocities

Objective

To limit the approach and intake velocity of the condenser cooling water so as to limit the impingement of organisms on the screens and racks of the intake structure.

Objective

To monitor and record the approach and intake velocities through the intake system.

Specification

Specification

2.2.1.1 The withdrawal of cooling water from the Hudson River shall be maintained so that the maximum value of area average approach velocity taken 24 ± 2 inches in front of the intake structure shall not exceed one foot per second (1 fps) and the maximum value of intake velocity through the outermost screens of any Unit shall not exceed 2.25 fps. This specification shall not apply to Unit 1 during the submerged Weir Feasibility Study.

3.2.1.1 The approach and the intake velocities shall be calculated for the intake system according To Equations 1-1 and 1-2 in Section 1.5. This specification shall not apply to Unit 1 during the submerged Weir Feasibility Study.

4.1.2a(3) Specification (Continued)

(ii) All fish will be collected from each traveling screen washing at Indian Point on a daily basis. Total numbers and weights of white perch, striped bass and Atlantic tomcod (during the spawning season) will be recorded for each unit daily. Sub-samples will be taken of all other species to establish a numbers-weight relationship. An estimate of total numbers shall be derived by recording total weight by species and converting to total numbers using the numbers-weight relationship. Fish will be collected from each screen individually and an estimate made of the percentage (on a weight basis) of the total collected by screen. For those species selected for subsampling a representative range of sizes shall be sampled. The fixed screens shall be washed at least once per day. The traveling screens shall be run at the time the fixed screens are raised and back-washed. The estimated number and species of fish washed off the fixed screens which do not enter the forebay shall be estimated.

(iii) If the number of fish collected as determined in (ii) above exceeds 5,000 per day for three consecutive days or such number in a single day exceeds 15,000, immediate corrective action shall be taken to reduce the number to below these levels. This limit shall apply if either Unit No. 2 or Unit No. 3 is operating separately or in combination with Unit No. 1. If, however, both Units Nos. 2 and 3 are operating (with or without Unit No. 1), and three or more circulating water pumps are operating at either Unit No. 2 or Unit No. 3 simultaneously with four or more circulating water pumps operating at the other Unit, such corrective action need not be taken until the numbers exceed 10,000 and 30,000 respectively. (Fish impingement numbers are subject to the evaluation required under Reporting Requirements (d)(1) page 4.1-18.) The fish collected at Unit 1 shall not be included in the total station counts and shall not apply to the environmental protection conditions described in this paragraph when the submerged Weir Feasibility Study is being conducted.

(iv) The causes of fish impingement shall be evaluated, including the magnitude of the approach and intake velocity. During the first 180 days after issuance of license for operation of Unit No. 3, the water velocity profile across the outer (traveling) screens, as was required for Units Nos. 1 and 2, shall be determined. Velocity determinations shall be made at full flow and reduced flow and shall include measurements from at least two intake forebays.

4.1.2a(4) Special Studies

Applicability

In conjunction with the General Ecological Survey (Section 4.1.2a(1)), a number of field and laboratory studies are being conducted to aid in determining the ecological impact of the Indian Point facility. Some of the studies have been completed during operation of Units Nos. 1 and 2. Certain studies are being extended to secure information for determining the effects of interim once-through cooling operation of Unit No. 3.

Objective

(i) To determine the major elements of the population dynamics of the striped bass (Morone saxatilis) and to evaluate the population effects of entrainment and impingement on striped bass by the use of mathematical models involving both spatial dependence (either 1- or 2- dimensional) and time dependence.

(ii) To determine the major elements of the population dynamics of white perch (Morone americanus) and to evaluate the population effects of entrainment and impingement on white perch.

(iii) To determine the efficiencies of the sampling equipment used to collect the ichthyoplankton life stages of striped bass.

(iv) To determine if a submerged weir will reduce the impingement of bottom oriented fish.

Specification

The following studies are being performed as described in Reference 4.1-8, and are following general procedures described in References 4.1-14, 4.1-15 and the additional references attached to the Bases.

A. Population dynamics of the striped bass and white perch which shall include:

(1) determination of relative and absolute population densities by: (See Section 4.1.2a (1)A(iii) for monitoring program)

Specification (Continued)

(10) determination of size frequency distribution for both populations.

B. Determination of the behavioral and physiological responses of selected nektonic and planktonic organisms to plant thermal discharges which shall include:

(1) Determination of the thermal preferences, avoidances, and upper and lower tolerance temperatures and the impact of thermal shock on different life stages of selected fish species.

(2) Determination of active respiration rates in the laboratory for selected fish species in order to evaluate the effects of thermal discharges on secondary production rates.

C. An evaluation of the relative efficiencies of the various ichthyoplankton gear types used to collect striped bass in the river, in the intake forebay, and in the discharge canal shall be made. Evaluations shall be made of the comparability of the estimates of densities as derived from sampling with each gear type. This evaluation shall be conducted by statistically appropriate sampling conducted during the time period striped bass eggs and larval stages are present. Sampling shall be conducted over a sufficiently long period of time to provide an assessment of changes in gear efficiencies as the striped bass larvae develop.

D. An evaluation of loss of impinged fish in the screen washing process in order to establish a correction factor to adjust daily counts of impinged fish. The method used to establish the correction factor sha be described in a report to be submitted no later than 90 days following the first 6 months of commercial operation of Unit No. 3.

E. A study of the effectiveness of a submerged weir in reducing impingement is to be performed as described in References 4.1-24 and 4.1-25. The NRC shall be notified within 24 hours of initiation of the test. The maximum duration of it shall be 180 days. The tasks (Task 1 and Task 2) in Reference 4.1-24 a do not apply and are replaced by the following:

Task - Monitor fish impingement at Unit No. 1 for twenty three-day periods (60 days total), alternating periods with and without partially blocked intakes. The flow rate through Unit No. 1 intake shall be maintained constant during the study. The study will be terminated prior to 180 days only if the data collected show that the blockage is not effective in reducing impingement, or if the total number of fish impinged on any one day exceeds 6,000. Fish impingement shall be monitored in accordance with Environmental Technical Specifications.

F. Administrative Controls on Changes

The Special Studies shall not be terminated without prior review and approval by the Director of Office of Nuclear Reactor Regulation. Changes in sampling locations, frequency and methodology, shall not be implemented without prior review and approval by the Director of Office of Nuclear Reactor Regulation. Any requested change submittal shall include a thorough documentation of the basis for the proposed change.

Reporting Requirements

Program reports of the data collected in field surveys and laboratory studies and the evaluation of the data with respect to this Specification shall be presented to the Director of Office of Nuclear Reactor Regulation within six months after completion of each annual study effort in accordance with Section

BASES Continued

The population dynamics, turnover rates, productivity, and species diversity of plankton organisms have been determined and will be used to evaluate the significance of plant operation on the ecosystem. Active respiration will also be used to evaluate the effect of predicted thermal discharges on secondary production rates of selected fish and benthos. These rates can be determined through laboratory experiments.

Biological behavior of organisms in the thermal plume will be correlated with the thermal plume measurements.

Plant production records provide data on the frequency of chlorination, concentrations and durations by season. Physical and chemical parameters are being measured in the intake bays and discharge canal and also at three transects (Figure 4.1-1): one from Verplanck southwest to Stony Point, one from Jones Point to Peekskill, and the third a V-shaped transect at Indian Point. The physical-chemical measurements (along with previous data) will define those physical and chemical properties of the estuary which have important influences on the biota (Table 4.1-2).

V. Gear Efficiency Studies

Striped bass ichthyoplankton sampling is conducted in a variety of locations, and specialized gear is necessary for sampling in each location. Absolute density estimates of the organisms in a unit volume of water can be made when the relative efficiency of the gear in collecting the organisms is known. Knowledge of gear efficiency allows for the comparison of data collected among the different locations.

VI Submerged Weir Feasibility Study

Bottom oriented fish such as Morone americana and Microgadus tomcod make up the bulk of impingement at Indian Point station. Although blockage of the bottom half of the screens will increase intake velocity which may increase impingement of pelagic species, the overall result may be of decreased impingement.

References (Cont'd)

4.1-19 Edmondson, W. T., "Reproductive Rates of Rotifers in Natural Populations," Nem. Inst. tal. Idrobio., 12, 21-77 (1960).

4.1-20 Warren, C. E., and Davis, G. E., "Laboratories Studies on the Feeding, Bioenergetics, and Growth of Fish," The Biological Basis of Freshwater Fish Production, p. 175, Shelby D. Gerkin (ed.), Blockwell, Oxford (1967).

4.1-21 Testimony of Gerald J. Lauer, Ph.D., New York University, "Effects of Indian Point Units 1 and 2 Operation on Hudson River Biota", October 30, 1972, Docket No. 50-247.

4.1-22 Testimony of R. A. Alevras, "The Estimation of Fish Impingement at Indian Point Units Nos. 1 and 2," February 5, 1973, Docket No. 50-247.

4.1-23 Consolidated Edison Company of New York, Inc., Environmental Report and Supplements for Indian Point Unit No. 3, Docket No. 50-286.

4.1-24 Attachment A of letter from LeBoeuf, Lamb, Leiby, & MacRae to B. Rusche dated February 24, 1976.

4.1-25 Letter from W. Cahill to G. Knighton dated May 18, 1976.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

ENVIRONMENTAL IMPACT APPRAISAL BY THE OFFICE OF NUCLEAR REACTOR REGULATION SUPPORTING AMENDMENT NO. 13 TO LICENSE NO. DPR-5, AMENDMENT NO. 24 TO LICENSE NO. DPR-26, AND AMENDMENT NO. 3 TO LICENSE NO. DPR-64 CONSOLIDATED EDISON COMPANY OF NEW YORK, INC. INDIAN POINT NUCLEAR GENERATING UNITS NOS. 1, 2, AND 3 DOCKETS NOS. 50-3, 50-247, AND 50-286

Introduction

By letter dated February 24, 1976, Consolidated Edison Company of New York submitted proposed changes to the Appendix B Technical Specifications of Licenses DPR-5, DPR-26, and DPR-64. Specifically, these changes are to allow a study of the effectiveness of simulated submerged weirs in reducing impingement of bottom oriented fish. The changes are two-fold. They provide relief from the intake velocity LCO and allow the impinged fish at the Unit No. 1 screens to be excluded from the total station counts during the period of the study.

Background

Indian Point Appendix B Technical Specifications require that the approach velocity two feet in front of the intake structure not exceed one foot per second and that the maximum value of the intake velocity through the outermost screens of any unit not exceed 2.25 fps. Limitations are also placed on the total number of fish collected from all three units. If they exceed 5,000 per day for three consecutive days or 15,000 in any single day for the sum of Units Nos. 1 and 2 or for Unit No. 3 immediate corrective action must be taken to reduce these numbers. The numbers of fish impinged at a plant are thought to be related to the intake velocity. As the intake velocity is increased usually greater impingement levels can be expected. This is

thoroughly discussed in the Indian Point Unit No. 3 Final Environmental Statement (FES pp. V51-56). The effect of other variables on fish impingement is not fully understood, however. All the fish kills at Indian Point Unit No. 1 appear to have been associated with the condenser cooling water system. Fish are caught against the screens by the force of the river water drawn into the intakes. Once caught against the screens they are unable to escape and eventually succumb to exhaustion.

The numbers and type of fish impinged at Indian Point are recorded to assure that the type of the majority of fish killed are known, to help establish the significance of the limits on impingement, and to verify the FES predictions. Indeed, recent analyses have shown (Ref. 4, pp. 3-11), especially with regard to Morone saxatalis, that the impact of Indian Point is less than originally forecast in the 1972 FES for Indian Point Unit No. 2.

Description of Study

The lower 50% of the intake screens will be blocked at Indian Point Unit No. 1 to simulate a submerged weir to test the effect this will have on impingement. The hypothesis is that benthic oriented fish such as Morone americana and Microgadus tomcod will be less subject to impingement with the bottom half of the screens blocked. These species make up the bulk of the impingements presently occurring and have been extensively dealt with in the Indian Point Unit No. 3 FES. The number of days the study will be in progress will be a maximum of 20 3-day periods over an interval of 180 days. During this time the blockage will be in place for 3 days and removed for 3 days on an alternating basis. Parameters such as the size of the blockage and flow rate will be maintained constant during the study. Furthermore, the study will terminate prior to 60 days if either (1) the results conclusively show that the blockage is not effective in reducing impingement or (2) the total number of fish collected at Indian Point Unit No. 1 exceeds 6,000 fish per day.

Evaluation

Consolidated Edison estimated that the annual fish kills at Indian Point Units Nos. 1 and 2 intakes will be less than one million per year with Unit No. 3 operational. We have previously estimated the possible fish kill at the station to be between two and five million per year (FES Unit No. 3). The latest data for Indian Point Unit No. 2 indicate, however, that the numbers being impinged per year are hundreds of thousands rather than millions. The limiting condition for operation (LCO) on total numbers per day was established to assure that the total number impinged per year is within the limits of our prediction of two to five million. The actual numbers of fishes impinged in the years 1973, 1974, or 1975 are significantly (almost an order of magnitude)

less than our upper limit estimate of five million per year. Although the total number of fish impinged during the study may be slightly higher than if the study were not being conducted, the numbers will not be significantly greater, and the total yearly numbers should still be significantly below the upper limit estimate made in the FES. Hence, the impact of the study would not change the predictions of the FES. Assuming an extreme case in which the number of fish impinged is 10,000 daily, not just for three consecutive days as specified in the LCO, but for an entire year, the total number of fish impinged at Units Nos. 2 and 3 would be less than 3,650,000 fish per year. If the number of fish impinged at Unit No. 1 reached the limit of 6,000 fish each day for the entire course of the study, then an additional 360,000 fish would be impinged at Unit No. 1 during the 60 day study. Thus, in this extreme case, a yearly total of less than 4,010,000 fish would be impinged at this station, a number well below our upper limit estimate of 5 million fish per year.

The proposed study also has the potential for developing a method of reducing the number of fish killed at the Indian Point site and at other similar reactor facilities. If the method under study proves successful the number of fish killed could be reduced at plants with once through cooling and also at plants with closed cycle cooling.

If the different hydrodynamic characteristics caused by Unit No. 3 operation and by the simulated weirs cause unexpectedly high impingement counts at Unit No. 1, the specifications assure that the study will be terminated.

Conclusion

On the basis of the foregoing analysis, it is concluded that there will be no significant environmental impact attributable to the proposed action. Having made this conclusion, the Commission has further concluded that no environmental impact statement for the proposed action need be prepared and that a negative declaration to this effect is appropriate.

Dated: December 20, 1976

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKETS NOS. 50-3, 50-247, and 50-286

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

POWER AUTHORITY OF THE STATE OF NEW YORK

NOTICE OF ISSUANCE OF AMENDMENTS TO

OPERATING LICENSES

AND NEGATIVE DECLARATION

The U. S. Nuclear Regulatory Commission (the Commission) has issued to Consolidated Edison Company of New York, Inc. (Con Ed) Amendment No. 13 to Provisional Operating License No. DPR-5 for Indian Point Nuclear Generating Unit No. 1, and Amendment No. 24 to Facility Operating License No. DPR-26 for Indian Point Nuclear Generating Unit No. 2, and has issued to Con Ed and the Power Authority of the State of New York Amendment No. 3 to Facility Operating License No. DPR-64 for Indian Point Nuclear Generating Unit No. 3. These amendments revised Technical Specifications for operation of the Indian Point Nuclear Generating Units located in Westchester County, New York. The amendments are effective as of the date of issuance.

The amendments permit tests on various fish impingement mitigating measures at Indian Point Nuclear Generating Unit No. 1 intakes during the period when Unit No. 1 is shut down.

The application for the amendments complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act),

and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendments. Prior public notice of these amendments was not required since the amendments do not involve a significant hazards consideration.

The Commission has prepared an environmental impact appraisal for the revised Technical Specifications and has concluded that an environmental impact statement for this particular action is not warranted because there will be no significant environmental impact attributable to the action.

For further details with respect to this action, see (1) the application for amendments dated February 24, 1976, (2) Amendment No. 13 to License No. DPR-5, (3) Amendment No. 24 to License No. DPR-26, (4) Amendment No. 3 to License No. DPR-64 and (5) the Commission's related Environmental Impact Appraisal. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N.W., Washington, D.C. and at the Hendrick Hudson Free Library, 31 Albany Post Road, Montrose, New York 10548.

A copy of items (2) through (5) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Director, Division of Operating Reactors.

Dated at Bethesda, Maryland, this 20th day of December 1976.

FOR THE NUCLEAR REGULATORY COMMISSION

Vernon L. Rooney, Acting Chief
Operating Reactors Branch #4
Division of Operating Reactors