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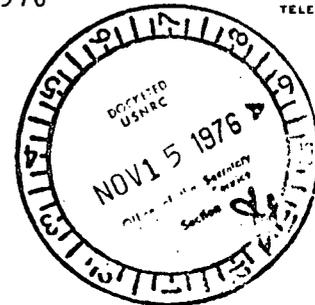
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November 10, 1976

* RESIDENT PARTNERS WASHINGTON OFFICE
* ADMITTED TO THE DISTRICT OF COLUMBIA BAR

Samuel W. Jensch, Esq.
Chairman, Atomic Safety
and Licensing Board
U.S. Nuclear Regulatory
Commission
Washington, D.C. 20555



Re: Consolidated Edison Company
of New York, Inc., Indian
Point Station, Unit No. 2
Docket No. 50-247, OL No.
DPR-26 (Extension of Interim
Operation Period)

Dear Mr. Chairman:

In accordance with your request at the prehearing conference held on October 27, 1976 (Tr. 57-58), there is enclosed a document which quotes the principal conclusions of the Atomic Safety and Licensing Appeal Board in its April 4, 1974 decision (ALAB 188, 7 AEC 323 (1974)) that are pertinent to Con Edison's application for an extension of the period of once-through cooling at Indian Point 2 to May 1, 1981. After each of these quotations the document identifies the data and analyses submitted since the Indian Point 2 operating license hearing which relate to the Appeal Board's conclusions and support Con Edison's application.

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In furnishing this document Con Edison does not waive its right to offer any evidence which is material to its application.

Sincerely yours,

LeBOEUF, LAMB, LEIBY & MacRAE

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Atomic Safety and Licensing
Appeal Board Panel

RELATED CORRESPONDENCE

Essential Findings of ALAB-188
(7 AEC 323 (1974))

1. Contribution of the Hudson River to Mid-Atlantic striped bass fishery

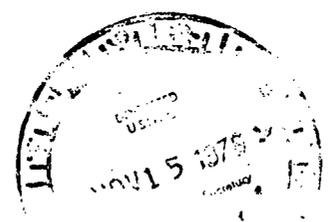
a. "We will consider first the issues concerning the effects of once-through cooling operation on the Mid-Atlantic fishery, a subject which the Licensing Board recognized is most significant in determining the 'kind and urgency of measures' to be taken to maintain the striped bass population (RAI-73-9 at 768)." (7 AEC at 361)

b. "Accordingly, we must reject the staff's claim that the Hudson River is a major source of the Mid-Atlantic striped bass fishery and, also, therefore, its prediction of the damage that is grounded thereon. [footnote omitted]" (7 AEC at 365)

Results of tagging studies were presented in the following reports: Hudson River Ecological Study in the Area of Indian Point - 1973 Annual Report (July 1974), see Section III, pp. 39-46; Hudson River Ecological Study in the Area of Indian Point - 1974 Annual Report (July 1975), see Section IX, pp. 1-8.

In accordance with a commitment made in the Indian Point 2 hearing, Con Edison investigated the feasibility of using innate tags to identify the origin of striped bass. This work was summarized on page 3-17 of the Environmental Report. This required a two-stage program, first to determine feasibility of the use of innate tags and secondly to obtain specimens from the Mid-Atlantic fishery for identification of origin.

The first phase was successfully completed in 1974 and was reported in the following report: Final Report of the Synoptic Subpopulation Analysis, Phase 1: Report on the Feasibility of Using Innate Tags to Identify Striped Bass From Various Spawning Rivers (September 1975). This report concluded that it was possible to identify the origin of striped bass collected in coastal waters with a greater than 80% certainty. Section V describes the experimental design for the second phase of the program which involved collection of striped bass samples from nine sectors of the Atlantic fishery extending from Main to North Carolina.



The second phase of the study was completed in 1975; the final report will be available in December 1976.

The data in this report will show that the overall contribution of the Hudson River striped bass to the Mid-Atlantic fishery is approximately 20%. This confirms the Appeal Board conclusion and constitutes a finding of impact far less than was predicted by the AEC Staff and the Hudson River Fishermen's Association in the Indian Point 2 hearing.

2. The amount of time that should be allowed for environmental study of once-through cooling operation at Indian Point 2

a. Objectives of short-term period of once-through operation. "The short-term period of operations with adequate safeguards to protect the environment should result in the gathering of additional information which will permit an informed re-evaluation of the proper choice for a cooling system for long-term operations. Empirical data from operation of the once-through system could possibly answer some of the uncertainties which exist concerning the predicted impact of such a system." (7 AEC at 375)

As discussed in the Environmental Report, pp. 3-27 et seq., tests were performed to evaluate the applicability of various fish diversion devices for alleviating fish impingement at the Indian Point Generating Station. A description of these tests and their results are contained in the report titled:

Final Report - Indian Point Flume Study -
Consolidated Edison Company of New York,
Inc. - July 1976 - prepared by Stone &
Webster Engineering Corporation

which was sent to the NRC in August 1976. Results of the study indicated that angled screens effectively guided 96% of the test fish and louver systems guided 84% of the fish. The data supporting these conclusions are contained in Table 3.4-2 for the angled screen and Table 3.4-4 for the louver system.

b. Effect of short-term operation. "We so conclude on the basis of our understanding of the record, including the initial decision, that the environment, including environmental amenities which are unquantifiable, will be protected against significant adverse impacts during short-term operations....If the observed impacts are within the range of acceptability, the record does not suggest, and we do not believe, that it is likely that those impacts will nevertheless have substantial long-term implications." (7 AEC at 375)

Con Edison has submitted data and analyses resulting from studies performed in 1973 and 1974 following the Indian Point 2 operating license hearing. The data gathered during the 1974 striped bass spawning season are noteworthy because the facility operated at substantial power levels during

that season as well as during most of the balance of that year. Results of analyses of the actual impact of power plant operations (including Indian Point 2) on the striped bass and certain other species during 1973 and 1974 are presented in Appendix D (particularly pp. II-13-16 and Section VII) of the Environmental Report. This assessment complements the prediction of impact anticipated as the result of the requested extension which is contained in Appendix A of the Environmental Report. These analyses confirm the Appeal Board's conclusion that the environment will be protected against significant adverse effects during short-term operations. See also Environmental Report (pp. 2-18 through 2-18B) and Section 2.1.3.1.2 (pp. 2-24 et seq.).

3. Model predictions of damage to the striped bass fishery due to entrainment and impingement

a. General. "We believe the weight of the evidence presented shows that the applicant's model using the three-hour averaging more nearly conforms to reality and is superior to the staff's model. Therefore, we conclude that the staff's estimate of entrainment due to their endless belt concept is too high." (7 AEC at 383)

"[T]he record does not support the HRFA and staff position on the percentage of striped bass eggs, larvae and juveniles I which it is reasonable to expect will be entrained in Units Nos. 1 and 2 during the spawning season." (7 AEC at 406)

The Environmental Report for the Extension Proceeding ("ER"), Section 3.3, pp. 3-20 et seq. describes the evolution of the mathematical models in the Indian Point 2 proceedings. The model used in Appendix A is the same model, the transport model, used in the Indian Point 2 hearing with revised inputs discussed below. As is discussed in the ER at page 3-21 et seq. and in Appendix A, p. 2, Con Edison's consultant, Lawler, Matusky & Skelly, has developed a real-time 2-dimensional model. This was described in the following report:

Report on Development of a Real-Time, Two-Dimensional Model of the Hudson River Striped Bass Population. October 1975.

This model will be used with inputs from the 1974 and 1975 fishery data to make projections of power plant impacts in the January 1977 report.

The f factors for the purposes of the extension proceeding are described in detail in Appendix A to the ER. The evolution of the f factors is described on pp. 14 through 26 with detailed presentations of data on Tables 12 through 19. Impacts are summarized in Tables 21 through 26.

A major difference from the Indian Point 2 proceeding is the existence of data from Bowline and Roseton. No data from these plants were available in the Indian Point 2 proceeding. In addition 1973 data from Indian Point are presented.

b. f₁ Factor. "Our review of the record does not reveal any sound evidentiary basis to support the position in the staff Brief [that the staff evidence and cross-examination demonstrated that there was no substantial basis for estimates that such factor (f₁) is less than 1].

"Our review of the testimony indicates that at least with respect to the depth distribution, both the applicant and staff data support an f₁ factor of considerably less than 1." (7 AEC at 383-84)

"We are convinced from these considerations that the intake will draw water from a zone which contains populations of larvae and Juvenile fish which are significantly lower than the average population in the river water." (7 AEC at 384)

Appendix A to the ER, Tables 12 through 18, show the calculations of f₁ factors for various life stages. In all cases the f₁ factor is based on data obtained since the Indian Point 2 hearing. The data were summarized and the collection methods used were described in the following reports.

Effects of Entrainment by the Indian Point Power Plant on Biota in the Hudson River Estuary - Progress Report for 1973. September 1974.

A Preliminary Analysis of the Abundance of Four Life History Stages of Striped Bass (Morone saxatilis) Collected in the Intakes of Indian Point Unit 1 and in the Hudson River in front of Indian Point.

An Analysis of the Abundance of Four Life History Stages of Striped Bass (Morone saxatilis) Collected in the Intakes and Discharge Canal of Indian Point Unit 1 and in the Hudson River at Indian Point.

1973 Hudson River Aquatic Ecology Studies - Bowline Point and Lovett Generating Stations. December 1974.

Central Hudson Gas & Electric Corporation - 1973 Hudson River Aquatic Ecology Studies at Roseton and Danskammer Point - October 1974 (Revised April 1975).

The raw data used for calculations are available for inspection upon request.

The calculations confirm the Appeal Board finding that this factor is considerably less than 1.

c. Combined f Factors. "The other major facet in the f factors for which there is an evidentiary basis for assigning an f value less than unity, is the intake avoidance factor for juveniles which are capable of swimming against the intake flow. This is the only intake avoidance factor which the applicant takes to be less than 1, and it assumes a best estimate of 0.5. Intervenor HRFA assumes that in the early juvenile stage the entrainment factor would be between 0.5 and zero, which is consistent with the applicant's use of f_2 as 0.5.

"On the basis of these data, as warranted by the evidentiary record, we must conclude that a value of considerably less than 1 for the combined f factors has been justified by the applicant."

"While uncertainties of the data may be too great to support fully the applicant's 'best estimate,' we are convinced that the evidentiary record, particularly the portions discussed above, clearly support the applicant's 'apparent maximum'* value of the combined f factors."

i. f_2 Factor. The Appeal Board said (7 AEC at 383) that the applicant concluded that f_2 could only be considered at less than 1.0 for Juvenile I fish. The 1973 data permitted calculation of f_2 factors for other life stages, and these are presented in Tables 13, 15, 16 and 17 of Appendix A to the ER. The data were summarized and the collection methods used were described in the reports listed above for f_1 . The raw data used for calculations are available for inspection upon request.

ii. f_c Factor. The Appeal Board said (7 AEC at 383) that the applicant concluded that f_c could only be considered at less than 1.0 for Juvenile I fish. The tables referred to above show the calculations of f_c for different life stages at substantially less than 1 based on data collected at Indian Point during 1973. These data are reported in the first report referred to above for f_1 , in particular Table 7-4.

*Testimony of Lawler, "Effect of Entrainment and Impingement at Indian Point on the Population of Hudson River Bass," October 30, 1972 (after Tr. 6254). Table 20 (after p. 63 of this testimony) gives the apparent maximum combined f factor values as: eggs. 0.5; larvae. 0.55; Juveniles. 0.2.

iii. Other f Factors. Appendix A to the ER indicates that other factors, designated f_l and f_w , have been added to take account of day/night differences indicated by the data. These are described on page 20 of Appendix A.

Con Edison considered the new data on f_3 to be insufficient to indicate a difference from the values presented in the Indian Point 2 proceeding.

4. Compensation

"We conclude from the record that compensation during the entire life cycle of the striped bass can be expected to be a factor in offsetting losses incurred by the operation of the Indian Point facility." (7 AEC at 387)

Con Edison has submitted data which confirm this conclusion of the Appeal Board. The data are discussed in the ER at pages 2-40 through 2-47. More detailed discussion of the data is contained in Supplement 2, Volume 1, Section VIII.

Two independent analyses were presented which indicated the existence of compensation: one based on stock recruitment and another based on density dependent growth. The data utilized to assess stock recruitment are contained in Table V-1, p. V-6, of Supplement 2, Vol. 1. The data utilized to assess density dependent growth are contained in Table V-3, p. V-26 of Supplement 2, Vol. 1 and in the response to Question A.25 annexed to the letter dated August 6, 1976, from Mr. Carl L. Newman to the Director of Nuclear Reactor Regulation.

These data were not presented in the context of compensation by any party to the Indian Point 2 proceeding. Furthermore, in view of the time lag in publishing fishery statistics, the data for the later years used in Section VIII Part B would not have been available at the time of the hearing.

These new analyses confirm the existence of compensation in Hudson River striped bass. Further research on compensation will be presented in the January 1977 report.

as requiring a conclusion at this time that stocking cannot be a viable alternative for short-term fisheries management.

Based on stream operations that have been conducted, coupled with the result of applicant's stocking experiment in the Hudson River stocking in 1973, it will probably permit a better assessment of the scope of the rearing and stocking programs which will have to be undertaken and the likelihood of success." (AEC at 402)

Con Edison has obtained substantial data which indicate that the rearing and stocking of Hudson River striped bass are feasible. These are discussed in the Section 3.4.1, pp. 3-25 et seq.

Data on this program have been submitted in the following reports:

Feasibility of Culturing and Stocking Hudson River Striped Bass - 1973 Annual Report. Texas Instruments Inc. July 1974.

Second Semi-Annual Report - Part of the Feasibility Study for Spawning, Hatching and Stocking Striped Bass in the Hudson River. Texas Instruments Inc. November 1974.

Feasibility of Culturing and Stocking Hudson River Striped Bass - 1974 Annual Report. Texas Instruments Inc. November 1975

The most recently published summary of the stocked fish recapture data is contained in the last report listed above. The data are summarized in Section VI, pp. 8 et seq. Appendix B Tables B-1, B-2, B-3 and B-4 contain the stocking and recapture data. These data show the recapture in April 1974 of fish stocked in the fall 1973.

This study was continued in 1975 and similarly successful results will be reported in the 1975 report. This report will show recapture of fish as much as 22 months after stocking.