BEFORE THE UNITED STATES

ATOMIC ENERGY COMMISSION

In the Matter of	)	
	)	
Consolidated Edison Company	)	Docket No. 50-247
of New York, Inc.	)	
(Indian Point Station, Unit No. 2)	)	

BEFORE THE ATOMIC SAFETY
AND LICENSING APPEAL BOARD

APPLICANT'S BRIEF IN SUPPORT OF APPLICANT'S EXCEPTIONS TO THE INITIAL DECISION AUTHORIZING FULL-TERM, FULL-POWER OPERATION

October 29, 1973

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I.

Introduction

On September 25, 1973 the Atomic Safety and Licensing Board ("Licensing Board" or "the Board") issued its Initial Decision authorizing the issuance of a full-term, full-power operating license for Indian Point 2 with particular conditions for the protection of the environment.[1/] On October 5, 1973 Consolidated Edison Company of New York, Inc. ("Applicant") filed pursuant to 10 C.F.R. Section 2.762 its exceptions to the Initial Decision appealing particular findings, con-

1/ On September 28, 1973 the Director of Regulation issued a full-term, full-power operating license with conditions for Indian Point 2.

clusions and rulings set forth in portions of the Licensing Board's Initial Decision that pertain to the environmental conditions imposed by the Licensing Board.[2/]

Those findings, conclusions and rulings of the Licensing Board to which Applicant's exceptions are addressed are in error because they are contrary either to law or to the evidentiary record, or both. The Licensing Board has misconstrued the requirements of the National Environmental Policy Act of 1969 ("NEPA" or "the Act")[3/] and has inadequately and inaccurately balanced the benefits and costs relating to alternate cooling systems for Indian Point 2 which have been considered in this proceeding. The Licensing Board's misunderstanding of NEPA has infected the Board's decision relating to the time for imposing a closed-cycle cooling system at Indian Point 2. The errors committed by the Licensing Board not only color the Board's ultimate decision but also brand many of those factors which compose the balancing equation. Furthermore, specific factors relied upon by the

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2/ For a general background of the environmental issues in this proceeding and a summary of Applicant's position on those issues, see Summary of 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, June 1, 1973. For a full discussion, see 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, May 17, 1973 ("Applicant's Proposed Findings").

3/ 42 U.S.C. §4321 et seq. (1970).

Licensing Board in its decision relating to an alternative cooling system are not supported by the evidence.

Consideration of the environmental and economic benefits and costs resulting from the operation of Indian Point 2 both with its presently designed once-through cooling system and with an alternative closed-cycle cooling system has been the subject of thousands of pages of testimony prepared and examined during the course of evidentiary sessions spanning a period of years.[4/] This extensive record reflects not only the depth, complexity and seriousness but also the often-stated uncertainties of the subject matter. The Licensing Board's misinterpretation of NEPA has resulted in a misapplication of the evidence to the issues to be considered. The implications of this fundamental error extend beyond this proceeding, important as this proceeding is to Applicant, the consumers of power in its service area and the population in the surrounding area. The Licensing Board's application of NEPA could thwart the considered evaluation of the correlation between the production of electrical power and man's environment.

The Licensing Board's opinion also raises the fundamental question of the criteria by which decisions on environmental protection matters are made. Rarely will an applicant for a Federal license be able to present "conclusive evidence" on all the environmental impacts of a proposed activity. The Licensing Board has interpreted NEPA to require that, in the absence

4/ Applicant's Proposed Findings at 36 (references to Applicant's Proposed Findings include all footnotes contained therein).

of "conclusive evidence," decisions should be made on the basis of the "most conservative" assumptions. Since these assumptions may frequently turn out to be erroneous, this will result in decisions on environmental matters which are frequently wrong. This is contrary to public policy, as enunciated by NEPA, when the application of the "most conservative" assumptions leads to an irrevocable adverse environmental impact, i.e., cooling towers. Decisions on these matters must be made on the basis of a realistic evaluation of the evidence available.

A result of the Licensing Board's errors is the requirement that Applicant "should proceed expeditiously with construction of a closed-cycle cooling system",[5] which the parties agree would require a natural draft cooling tower approximately 500' high and 400' in diameter,[6] which will emit a visible plume of saline vapor. Although the Licensing Board admits that this tower would be "an esthetic intrusion into the landscape of the Hudson River Valley",[7] the Board has, nevertheless, ordered the irrevocable imposition of this tower on the local community which must live with it and on Applicant's customers who must pay for it on the basis of the fundamental errors addressed in this brief.

The Appeal Board, acting on behalf of the Atomic Energy Commission itself, has the power and the responsibility to correct

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5/ Initial Decision at 108.

6/ Id. at 77.

7/ Id.

the Licensing Board's legal and factual errors.[8] The Appeal Board has the responsibility to go beyond the Licensing Board's decision and to analyze the record for the correct decision. To this end, the Appeal Board has the power to modify inaccurate, irrational and unsupported findings, conclusions or rulings as required by the evidence and the law.[9] By accurately applying the legal principles of NEPA to the evidence contained in the extensive record of this proceeding the errors of the Licensing Board will be evident. Applicant requests the Appeal Board to exercise its responsibility and to grant the relief set forth in Part IV below.[10]

8/ Hamlin Testing Laboratories Inc. v. AEC, 357 F. 2d 632 (6th Cir. 1966); Duke Power Co. (William B. McGuire Nuclear Station, Units 1 & 2), ALAB-128, RAI-73-6 at 399, 400 (June 13, 1973); Consumers Power Co. (Palisades Plant), ALAB-70, WASH-1218 (Suppl. 1) 478, 485 n. 28 (September 27, 1973).

9/ Id.

10/ Part II of Applicant's brief is written in support of Applicant's Exceptions 1-5, 20 and 22; Part III in support of Applicant's Exceptions 7-19, 21 and 23. Applicant's Exception 6 is addressed in both Parts II and III.

II.

NEPA Requires That In Reaching A Licensing Decision On Indian Point 2 The Atomic Energy Commission "Consider" And "Balance" Environmental Factors, Not That The Hudson River Fisheries Be Protected Notwithstanding The Balance of Benefits and Costs.

Underlying those sections of the Licensing Board's Initial Decision concerning closed-cycle cooling and compliance with Appendix D[11/] is the Licensing Board's concept that Indian Point 2 must be operated in a manner which will minimize suspected adverse environmental impact on the fishery.[12/] Thus, even though the Initial Decision states that:

> "On the basis of monetary values alone the Board finds that the benefits, to the extent they can be

11/ 10 C.F.R. Part 50, App. D.

12/ Applicant's Exception 4. "The conclusion that the National Environmental Policy Act of 1969 ("NEPA") requires that the Hudson River fishery be protected from 'serious damage' by installation of a closed-cycle cooling system for Indian Point 2 notwithstanding the estimated balance of monetary benefits and costs of a closed-cycle cooling system, reflected in the following portions of the decision:

> "(a) On the basis of estimates of monetary values alone, the Board finds that the benefits, to the extent they can be quantified, to be derived from installation of a closed-cycle cooling system on Unit No. 2 are unlikely to approach the cost. This must certainly be true over the next ten years. This, however, is not the only consideration .... The law requires that a natural resource like the Hudson River fishery be protected from serious damage if economic means having less adverse environmental impact are available to provide such protection. (Pages 106-107)
>
> "(b) In a previous section, the Board concluded that the Hudson River supplies between 20 percent and 80 percent of the recruits to the Middle Atlantic striped bass fishery. If the total value of the fishery is $20 million per year, the

> quantified, to be derived from the installation of a closed-cycle cooling system on Unit No. 2 are unlikely to approach the cost...." 13/

the Board nonetheless requires the termination of operation of Indian Point 2 with its once-through cooling system by May 1, 1978 because of its belief that NEPA "requires that a natural resource like the Hudson River fisheries be protected from serious damage if economic means having less adverse environmental impact are available to provide such protection." 14/ This statement is not only factually incorrect in its implications 15/ but also

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> Hudson River contribution is between $4 million and $16 million per year. Based on the Applicant's 'best estimate' that the reduction in recruitment from the Hudson River would be 5 percent, the impact of once-through cooling of Unit Nos. 1 and 2 would be only $200,000 to $800,000 per year in the tenth year after operations have commenced. On the basis of Applicant's most conservative estimate (adopted by the Board as being a reasonable expectation), the reduction in recruitment would be 35 percent and the cost would be $1.4 million to $5.6 million per year in the tenth year. (Page 67)"

13/ Initial Decision at 106.

14/ Id. at 107.

15/ The Licensing Board's statement implies that closed-cycle cooling will have "less adverse environmental impact" than once-through cooling. This is by no means an established fact. Empirical studies to determine the environmental impact of once-through cooling cannot reasonably be complete before 1977. See Applicant's Proposed Findings at 234-35 (Finding No. 021). Results of studies concerning the potential environmental effects of closed-cycle cooling at the Indian Point site such as fogging, icing and the effects of salt deposition are currently being performed and will not be finished before December 1, 1974. See Part III, Section G infra. Until the latter studies are completed there is no adequate basis for an assessment of the localized environmental impact of a closed-cycle cooling system.

evidences a misconceived and inaccurate interpretation of the law. NEPA, unlike some other statutes, does not make protection of the environment paramount among factors entering into agency decision-making.[16/] In enacting NEPA, "Congress did not establish environmental protection as an exclusive goal; rather, it desired a reordering of priorities, so that environmental costs and benefits will assume their proper place along with other considerations."[17/]

16/ See, e.g., Citizens to Preserve Overton Park v. Volpe, 401 U.S. 402 [2 ERC 1250] (1971), involving section 4(f) of the Department of Transportation Act (49 U.S.C. §1653(f) (1970)) and section 138 of the Federal-Aid Highway Act, 23 U.S.C. §138 (1970) which provide that the Secretary of Transportation shall not approve any project requiring park land "unless (1) there is no feasible and prudent alternative to the use of such land, and (2) such program includes all possible planning to minimize harm...."; Life of the Land v. Brinigar, No. 73-1784 [5 ERC 1780] (9th Cir. Sept. 10, 1973), involving section 16(c)(4) of the Airport and Airways Development Act of 1970 (49 U.S.C. §1716(c)(4) (1970)) which requires that the Secretary of Transportation shall "authorize no project found to have adverse [environmental] effect unless . . . no feasible and prudent alternative exists"; Minnesota PIRG v. Butz, 358 F.Supp. 584 [5 ERC 1251] (D.C. Minn. 1973), in which the court held that section 4(d)(5) of the Wilderness Act (16 U.S.C. §1133(d)(5) (1970)) required that where "there is a conflict between maintaining the primitive character of [a wilderness area] and allowing ... other uses, the former must be supreme." 358 F.Supp. at 629 [5 ERC at 1282]. NEPA contains no provision analogous to the "feasible and prudent alternative" clauses of the above-cited statutes nor is there any requirement in NEPA that environmental effects of proposed actions be mitigated or that environmental values be preferred in agency decision. See, Citizens to Preserve Overton Park, Inc. v. Volpe: Environmental Law and the Scope of Judicial Review, 24 Stan. L. Rev. 1117, 1131-33 (June 1972).

17/ Calvert Cliffs' Coordinating Comm. v. AEC, 449 F.2d 1109, 1112 (2 ERC 1779, 1780] (D.C. Cir. 1971).

The Licensing Board in requiring that Indian Point 2 terminate operation with its once-through cooling system after May 1, 1978 relied upon section 101 of NEPA.[18/] That section of the Act takes cognizance of the environmental problems facing the nation and declares it to be the policy of the Federal government to "use all practical means ... to create and maintain conditions under which man and nature can exist in productive harmony and fulfill the social, economic and other requirements of present and future generations of Americans."[19/] In order to carry out this policy, it is declared to be the "continuing responsibility of the Federal Government to use all practical means consistent with other essential considerations ... to improve and coordinate Federal plans, functions, programs and resources ...."[20/] Section 101, therefore, expresses the underlying legislative policy of NEPA.[21/] Section 101 does not, however, create "substantive rights" to

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18/ Initial Decision at 107.

19/ Section 101(a), 42 U.S.C. §4331(a) (1970).

20/ Section 101(b), 42 U.S.C. §4331(b) (1970).

21/ Environmental Defense Fund v. Hardin, 325 F.Supp. 1401, 1403 [2 ERC 1425, 1426] (D.D.C. 1971).

an environment free from adverse impact "that are enforceable in the courts."[22/] Nor does it mandate "particular substantive results in particular problematic instances."[23/]

While NEPA dictates no particular substantive result from the agency decisional process, it does establish procedures to insure that the national environmental policy set forth in section 101 is implemented and that the environmental effects of proposed agency actions are carefully considered in the agency review process. These procedures are set forth in section 102 of NEPA, the "action forcing" section of the Act,[24/] which directs that all Federal agencies "utilize a systematic interdisciplinary approach"[25/] and give "presently unquantified environmental amenities and values ... appropriate consideration in decisionmaking along with economic and technical considerations."[26/] Since these environmental amenities and values are often in

22/ Environmental Defense Fund v. Corps of Engineers, 348 F.Supp. 916, 925 [4 ERC 1408, 1413] (N.D. Miss. 1972).

23/ Calvert Cliffs' Coordinating Comm. v. AEC, 449 F.2d at 1112 [2 ERC at 1780].

24/ Id. at 1113 [2 ERC at 1781].

25/ Section 102(2)(A), 42 U.S.C. §4332(2)(A) (1970).

26/ Section 102(2)(B), 42 U.S.C. §4332(2)(B) (1970).

conflict with other values and factors, particularly those of an economic and technical nature, consideration of the former along with the latter has been held to necessitate the employment of "a rather finely tuned and 'systematic' balancing analysis in each instance."[27/] This case-by-case balancing analysis should result in an assessment of the "particular economic and technical benefits of planned action" which are then "weighed against the environmental costs" of that action.[28/] In order to insure that this balance is carried out, and to insure that there is full disclosure of the environmental impact of proposed "major Federal actions," section 102(2)(C) of NEPA requires the preparation of a detailed statement which must set forth, inter alia, "the environmental impact of the proposed action," and "alternatives to the proposed action."[29/]

While the detailed environmental statement provides a basis for "evaluation of the benefits of the proposed project in light of its environmental risks," and "comparison of the net balance for the proposed project with the environmental risks presented by alternate courses of action,"[30/] NEPA

27/ Calvert Cliffs' Coordinating Comm. v. AEC, 449 F.2d at 1113 [2 ERC at 1781].

28/ Id. at 1123 [2 ERC at 1788].

29/ Sections 102(2)(C)(i) and (iii), 42 U.S.C. §4332(2)(c)(i) and (iii) (1970).

30/ Natural Resources Defense Council v. Morton, 458 F.2d 825, 833 [3 ERC 1558, 1561] (D.C. Cir. 1971).

neither authorizes nor requires agencies to choose the alternative or alternatives which supposedly has the least impact on the environment notwithstanding countervailing economic and other factors.[31/]

In short, while NEPA directs Federal agencies to give "consideration" to environmental factors and to develop procedures to insure that the environmental costs of a proposed action are "balanced" against its benefits, it dictates no substantive results.[32/] Applicant agrees that there has been compliance with the procedural directives of section 102 in this proceeding. But, the agency action resulting from that balancing analysis must be reasonable rather than irrational.[33/] It may not be "arbitrary or capricious"

31/ The language of NEPA clearly indicates that environmental values were not to be preferred in the agency decisional process but rather were to be given "appropriate consideration" along with other factors. Section 102(B), 42 U.S.C. §4332(B) (1970). Any other interpretation of the Act is both inconsistent with its plain language and unsupported by judicial interpretation. One court has attempted to interpret the statute otherwise. The United States District Court for the Southern District of Texas in Sierra Club v. Froehlke, 359 F.Supp. 1289 [5 ERC 1033] (S.D. Tex. 1973), stated that "protection of the environment was to be given paramount importance...." 359 F.Supp. at 1333 [5 ERC at 1061]. The only authority cited by the court for this mistaken interpretation of NEPA was Overton Park which did not involve NEPA but rather a statute which required minimization of environmental harm. See note 16 supra.

32/ Reviewing courts will not substitute their judgment on what constitutes desirable agency action for that of decision makers. Courts will however require "a strict standard of compliance" with the procedural directives of section 102 of NEPA. Calvert Cliffs' Coordinating Comm. v. AEC, 449 F.2d at 1112 [2 ERC at 1780]; Natural Resources Defense Council v. Morton, 458 F.2d at 838 [3 ERC at 1564]: "So long as the officials and agencies have taken the 'hard look' at environmental consequences mandated by Congress, the court does not seek ... to interject itself within the area of discretion of the executive as to the choice of the action to be taken." (footnote omitted).

33/ NEPA "must be construed in the light of reason." Natural Resources Defense Council v. Morton, 458 F.2d at 837 [3 ERC at 1564].

and should not be allowed to stand if it were based on a "clear error of judgment."[34/] It is the responsibility of the Appeal Board both to correct the Licensing Board's misinterpretation of NEPA and to redress the Licensing Board's inaccurate and inadequate performance of its "independent balancing" function so that the decision of the Atomic Energy Commission in this proceeding will comply with the dictates of that statute.

A. NEPA Requires That The Factors Included In The "Balance" Of Environmental Costs and Benefits Not Be Merely Conjectural But Rather Be Determined After "Consideration" Of The Best Information Available In Order To Secure The "Optimally Beneficial Action."

The Licensing Board in its Initial Decision concluded that NEPA requires that the Hudson River fisheries be protected from potential "serious long-term damage" by the termination of the operation of Indian Point 2 with its once-through cooling system by May 1, 1978 and the installation of a closed-cycle cooling system.[35/] The Licensing Board's determination was not the product of the "finely tuned and 'systematic' balancing analysis" of

34/ The courts, in reviewing agency compliance with NEPA, will "engage in 'substantial inquiry' to determine 'whether there has been a clear error of judgment'. Courts are allowed to delve into the decision-making process on their own to determine if the agency's decision was arbitrary and capricious when viewed in terms of the data and information supplied and set forth in the EIS." Cape Henry Bird Club v. Laird, 359 F.Supp. 404, 410 [5 ERC 1283, 1286] (W.D. Va. 1973). In the case of the Indian Point 2 facility, of course, the entire record of the proceeding, not just the Final Environmental Statement prepared by the Regulatory Staff, must be considered.

35/ Initial Decision at 107.

environmental costs and benefits required by NEPA but rather rested on experimental and unverified techniques and admittedly speculative and controversial assumptions.[36/]

As it was ultimately presented to the Licensing Board, the pivotal issue in this proceeding was not whether Indian Point 2 should be authorized to operate with its presently-designed once-through cooling system but rather how much time should be allowed for environmental study before a closed-cycle cooling system were required for Indian Point 2.[37/] As a matter of logic the Board should not have required that the operation of Indian Point 2 with its once-through cooling system be terminated in 1978 unless the evidence demonstrated that (a) the Middle Atlantic striped bass fishery would be irreversibly harmed by the operation of the once-through cooling system

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36/ The Board not only dealt in such speculations but it compounded these speculations in a manner which gave a result contrary to the evidence in the record as well as contrary to reason. See Part II.B. infra.

37/ Although the Board in its Initial Decision at 36 stated that "[t]he primary issue for the Board to decide is whether a closed-cycle cooling system should be imposed on Unit No. 2 now or the decision should be delayed until Applicant's ecological study is completed in 1977...." Applicant had proposed that its license be conditioned as follows:

> "Operation of the facility with its presently designed once-through cooling system shall be permitted until September 1, 1981. Unless otherwise authorized by an amendment to this operating license following review of the results of licensee's ecological study program, operation shall be permitted after September 1, 1981, only if a closed-cycle cooling system shall have been installed by that date."

Applicant's Proposed Findings at 43 (Proposed Finding No. C8).

between 1978 and 1981 and that (b) should severe adverse environmental effects be observed from operation of the once-through cooling system appropriate steps could not be taken to limit such effects.

The Licensing Board responded to both these questions in its Initial Decision. The Board agreed with the Applicant "that there is unlikely to be a serious permanent effect on the fishery by a delay of a year or two in starting construction of a closed-cycle cooling system"[38/] and specifically found that should severe adverse environmental effects be observed during this time appropriate steps could and would be taken to limit such effects.[39/]

Despite these findings[40/] the Licensing Board determined that "[o]peration of Unit No. 2 has the potential for causing long-term damage to

38/ Applicant's Exception 3 addresses this point:

> "The ruling that operation of Indian Point 2 with once-through cooling may not continue beyond May 1, 1978 although the Board has not found that operation of the plant for the additional period from May 1, 1978 through September 1, 1981 will have an irreversible impact upon the mid-Atlantic fishery and indeed has specifically agreed 'that there is unlikely to be a serious permanent effect on the fishery by a delay of a year or two in starting construction....' (Pages 100-101)"

39/ Id. at 109; Applicant's Proposed Findings at 197 (Finding No. N4). The Regulatory Staff also agreed; see Regulatory Staff's Proposed Findings of Fact and Conclusions of Law in the Form of a Proposed Initial Decision, June 11, 1973 at 67 (Finding No. N4).

40/ As well as the finding that the cost of a closed-cycle cooling system exceeded the economic value of the maximum predicted loss to the Hudson River fishery at least for the next ten years. Initial Decision at 107.

the Hudson River fishery"[41] and, therefore, required an irreversible commitment now to a closed-cycle cooling system with an annual levelized cost of approximately $20,000,000 per year for the life of Indian Point 2.[42] This conclusion flows from an Initial Decision which contains candid statements that the Licensing Board was unable to identify accurately the particular benefits or costs to the striped bass fishery and the general environment from either closed-cycle cooling or once-through cooling at Indian Point 2. In the face of this limitation the Board has been reduced to conjecture and speculation in assuming that closed-cycle cooling would have a "less adverse environmental effect" than once-through cooling.[43] Such conclusions are made in disregard of NEPA's requirements.[44]

A significant example of the Licensing Board's failure to base its determination on a rational and accurate balancing analysis was its reliance

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41/ Initial Decision at 107 (emphasis added).

42/ Such an irreversible commitment of resources would foreclose a proper evaluation of the real impact of once-through cooling at Indian Point 2 on the striped bass fishery and an adequate evaluation of the costs and benefits of available alternatives to once-through cooling.

43/ Initial Decision at 107.

44/ "Where there is no reference to scientific or objective data to support conclusory statements" NEPA's requirements have not been met. (footnote omitted). Natural Resources Defense Council v. Grant, 355 F.Supp. 280, 287 [5 ERC 1001, 1005] (E.D. N.C. 1973).

on experimental mathematical models in lieu of empirical evidence.[45] Applicant has stated throughout this proceeding that although mathematical models "are useful to illuminate the critical and scientific elements of population dynamics and to provide guidance in the design of the data collection effort" and provide an indication of the environmental impact, the limitations of such models are evident.[46] The Licensing Board itself recognizes these limitations.[47] Again, despite its own specific finding the Licensing Board uses the results of an admittedly "suspect" tool to make its ultimate determination. Applicant asserts that the Licensing Board's inconsistent approach to a determination of the potential environmental impact for once-through cooling is wrong.

45/ Applicant's Exception 1 is addressed to this point:

> "The ruling that estimates of impact upon the striped bass fishery based upon present modeling techniques and existing data are an adequate basis for making a decision now to require installation of a closed-cycle cooling system for Indian Point 2 notwithstanding the Licensing Board's recognition that:
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> > '... it is almost impossible to describe the complexities of estuarine behavior by mathematical formulas susceptible to programming for computer computation. The fact of the matter is that even though the computer models which can be built appear very complicated, they involve such great simplifications as to make their applicability to the real situation suspect.'
>
> (Pages 29, 30, 36-37, 51)"

46/ Applicant's Proposed Findings at 49-50 (Finding No. D2).

47/ Initial Decision at 29-30. While the referenced statement of the Licensing Board is included in the section of the Initial Decision relating to "Thermal Discharges," the statement that the applicability of computer models to the real situation is "suspect" is generic.

Applicant further takes exception to the Licensing Board's perfunctory consideration of the environmental impact of a closed-cycle cooling system.[48] The environmental impact from the operation of a closed-cycle cooling system at Indian Point 2 is not known at this time.[49] Applicant has maintained throughout this proceeding that it is reasonable and correct to evaluate the effect of the alternatives imposed. The Licensing Board dismisses this factor of the balance.[50]

The Applicant does not seek to avoid implementing a reasonable alternative to once-through cooling whose need has been established on the basis of a rational "consideration" of all presently known environmental costs and benefits and a realistic balancing of accurately assessed costs and benefits. The determination of the Licensing Board to prohibit operation of Indian Point 2 without a closed-cycle cooling system after May 1, 1978 without adequate or accurate information on the effects of once-through cooling on the Hudson River and mid-Atlantic fisheries and in disregard of economic factors does not

48/ Applicant's Exception 2. "The ruling that the potential adverse environmental impact of the once-through cooling system for Indian Point 2 justifies construction of a closed-cycle system even though the economic costs of such a system are greater than the Licensing Board's maximum predicted economic loss to the fishery and the environmental costs of the latter system have not yet been determined. (Pages 77-79, 83, 106-108)"

49/ See Part III, Section G infra.

50/ See note 15 supra; see also Initial Decision at 107.

evidence an accurate "balance" or adequate "consideration" of those factors. Nor is it consistent with the "careful and informed decisionmaking process" mandated by NEPA.[51] The Licensing Board's condition is a "clear error of judgment"[52] and should be modified.

B. NEPA Requires The Use Of Realistic Standards In Evaluating The Factors To Be "Considered" And "Balanced."

The "finely tuned and 'systematic' balancing analysis" required by NEPA[53] must be "analytical" rather than "conclusory."[54] Since NEPA is designed to insure that decision-makers are fully aware of the true impact--i.e., both the true environmental and economic costs and benefits--of a proposed action, the factors which determine those costs and benefits must be realistic and reasonable.[55] A contrary approach provides infinite possibilities for manipulation of the balance required by NEPA and, consequently, of the determination of the "true" impact.

51/ Calvert Cliffs' Coordinating Comm. v. AEC, 449 F.2d at 1115 [2 ERC at 1783].

52/ See note 34 supra.

53/ Calvert Cliffs' Coordinating Comm. v. AEC, 449 F.2d at 1113 [2 ERC at 1781].

54/ Daly v. Volpe, 350 F.Supp. 252, 259 [4 ERC 1481, 1485] (W.D. Wash. 1972).

55/ All of the particular factors which go into the "balance" are not, of course, able to be "quantified." NEPA, however, requires that these "unquantified" values be given "due consideration." Section 102(2)(B), 42 U.S.C. §4332(2)(B) (1970). Since NEPA "must be construed in the light of reason" the emphasis placed on these "unquantified" values must be reasonable rather than speculative.

In evaluating the environmental impact of once-through cooling the Licensing Board not only relied upon speculative and conjectural data but also disregarded those realistic estimates which it did have. An analysis of the language of the Licensing Board's decision reveals that the Board's underlying rationale is that it must use only the "most conservative"[56/] estimates and calculations when evaluating unresolved environmental factors to determine the impact of once-through cooling.[57/] Neither NEPA nor the

56/ Initial Decision at 43-44.

57/ Applicant's Exceptions 5 and 6 underscore the Licensing Board's error in this regard. It should be noted that Exception 6 is also addressed in Part III, Section C infra.

Exception 5. "The Licensing Board's ruling as to the standards by which it judges the evidence concerning potential adverse effects of the once-through cooling system, reflected in:

> "(a) The finding on page 48 that 'calculations with the combined f factors equal to 1 [is] appropriately conservative,' notwithstanding the Licensing Board's recognition that '[t]he Applicant has some justification for its best estimate of the combined f factors.'
>
> "(b) The finding that the effects of compensation will not effectively mitigate the impact of plant operations, as reflected in the following portions of the decision:
>
> > "(1) 'The Board agrees that it is desirable to take compensation into account but does not find convincing evidence that the effects at the present level of population are likely to be as effective in reducing the plant impact as Applicant's calculations indicate.' (Page 50) (emphasis added)
> >
> > "(2) 'None of the present evidence demonstrates that compensation will be effective in preventing drastic reductions in the fish populations.' (Page 100) (emphasis added)

Commission's regulations require or permit that a licensing board apply such assumptions. It is no more appropriate for the Board to be unrealistic in its estimate of potential adverse impact on the fishery from once-through cooling than it is to overestimate the adverse effects of closed-cycle cooling devices or the effects on the population of loss of electrical power from Indian Point 2 during and after the conversion to once-through cooling. The use of such standards, rather than realistic assessments of environmental effects, distorts and makes useless the Board's balancing analysis.

The Licensing Board confuses its responsibilities to protect the public health and safety under the Atomic Energy Act with its responsibilities to consider the environmental impact of the operation of Indian Point 2 under NEPA. The Licensing Board is not required to and should not transpose the

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"and

"(c) The conclusion that it is 'only prudent to assume that the impact of operation of the plants as they are presently designed will be at least' as great as shown by the 'Applicant's conservative calculations.' (Page 51) (emphasis added)"

Exception 6. "The conclusion (not supported by Applicant's testimony) that Applicant's conservative calculations show certain reductions in the striped bass population due to operation of Indian Point 1 and 2, reflected in the finding that:

"' ... the Board concludes that the impact of one year of plant operation is unlikely to be as great as is predicted by the Staff and HRFA. However, Applicant's conservative calculations show reductions in striped bass population of 20 percent in the fifth year and 35 percent in the tenth year for operation of the Indian Point Unit Nos. 1 and 2, and 40 and 60 percent for operation of all plants now on the river, including Unit Nos. 1 and 2.' (Page 51)"

"conservatisms" of radiological considerations to the evaluation of environmental factors.[58/] Under NEPA the Licensing Board is required to balance realistic factors.

The impropriety of the Board's use of such standards in evaluating environmental factors becomes evident when reviewed from the standpoint of the determination which resulted from this use. That determination, requiring a closed-cycle cooling system for operation of Indian Point 2 after May 1, 1978, was as a consequence of the Licensing Board's actions based on a pyramid of these "conservative" hypotheticals. Examples of but some of these assumptions are sufficient to establish the erroneous nature of the Board's conclusions.

Although the Licensing Board specifically found that "the Applicant has some justification for its best estimate of the combined f factors"[59/]

58/ See, Annex to App. D, 10 C.F.R. Pt. 50, which states, inter alia: "The highly conservative assumptions and calculations used in AEC safety evaluations are not suitable for environmental risk evaluation, because their use would result in a substantial overestimate of the environmental risk. For this reason, Class 8 events shall be evaluated realistically. Consequences predicted in this way will be far less severe than those given for the same events in safety analysis reports where more conservative evaluations are used."

59/ Initial Decision at 48. Applicant's testimony included a mathematical model designed to estimate the effect of the operation of Indian Point on the Hudson River striped bass population. The model included "f factors" representing particular parameters for such estimates. Initial Decision at 47-48; Testimony of John P. Lawler, Ph.D., Quirk, Lawler & Matusky Engineers on the Effect of Entrainment and Impingement at Indian Point on the Population of the Hudson River Striped Bass, Modifications and Additions to Testimony of April 5, 1972, Oct. 30, 1972 (follows Tr. 6256) ("Lawler on Entrainment and Impingement, Oct. 30") at 30-34, 48-65.

and agreed that f does not equal one[60] the Board "considers the calculations with the combined f factors equal to 1 to be appropriately conservative."[61] Since the Board found that Applicant's estimates of f factors were not "reliable or accurate"[62] and that data did not support the finding that the f factors were "substantially less than unity"[63] the Board determined, in the face of its own findings, that the combined f factors are equal to 1.

The Licensing Board, continuing its erroneous reasoning, stated that although "it is desirable to take compensation into account," compensation is not "likely" to be "as effective ... as Applicant's calculations indicate"[64] and, therefore, did not include compensation in its balancing. The Licensing Board demanded "convincing evidence" and an absolute "demonstration" that compensation would be effective.[65]

60/ Id. at 111, item D27.

61/ Id. at 48.

62/ Id. at 111, item D27.

63/ Id. at 112, item D38.

64/ Id. at 50, 100.

65/ Initial Decision at 100.

The Board also decided that it was "only prudent" to assume that the impact of the operation of Indian Point 2 with its once-through cooling system would be "at least" as great as "Applicant's conservative calculations."[66/]

The Licensing Board's position in employing these "conservative" assumptions is both irrational and untenable. While specifically finding that the evidence does not support its position, it imposes a standard which it "feels" might be prudent. The Board's "feeling" appears to be based on its misunderstanding of NEPA.[67/]

66/ Id. at 50, 100.

67/ See Part II supra. The Licensing Board's error in employing these "conservative" assumptions is substantial. In its ultimate conclusions the Licensing Board implicitly has adopted "conservative" assumptions on the following matters:

1. 100% mortality of entrained organisms;

2. Even distribution of striped bass eggs, larvae and early juveniles laterally and vertically in the estuary;

3. Timing and duration (rate) of migration past Indian Point;

4. Age, condition and behavior of striped bass young of the year when passing Indian Point;

5. No intake avoidance mechanisms;

6. A maximum 80% contribution of the Hudson River to the striped bass population of the Mid-Atlantic; and

7. Absence of compensatory mechanisms.

If any one of these assumptions should be wrong, it would have a major impact on the Licensing Board's analysis.

The Licensing Board's use of erroneous standards in its evaluation of environmental factors is further demonstrated by its imposition of unjustified and unreasonable requirements for evidence concerning environmental impacts submitted by the Applicant. There is no basis in NEPA or Commission regulations for the requirement either that Applicant "conclusively demonstrate" that operation of Indian Point 1 and 2 will not have an unacceptable long-term adverse impact on the Hudson River fisheries in order to permit once-through operation of Unit No. 2 until September 1, 1981[68/] or that Applicant must demonstrate that the benefits of maintaining the populations of species other than striped bass fall short of compensating for the costs if stocking is to be used to mitigate the adverse effects of once-through cooling.[69/]

By applying unsubstantiated and unrealistic standards in evaluating the factors used in the environmental balance, the Licensing Board committed substantial error. Such errors demand that the Board's determination to condition the operation of Indian Point 2 after May 1, 1978 be modified as set forth in Part IV herein.

68/ Exception 20. "The ruling that it is necessary for the Licensing Board to determine that Applicant's research program will be able to 'conclusively demonstrate' by 1977 that the operation of Indian Point 1 and 2 will not have an unacceptable long-term adverse impact on the fisheries supported by the Hudson River, in order to permit once-through operation to continue until September 1, 1981. (Pages 98-100)"

69/ Exception 22. "The finding that '[i]f stocking is to be used to mitigate the effects of once-through cooling, it is incumbent on the Applicant to show that the benefits of maintaining the populations of [species other than striped bass] fall short of compensation for the costs.' (Page 90)"

III.

Specific Factors Upon Which The Licensing Board Relied In Its Initial Decision Are Either Not Supported By The Record Or Are Contrary To The Evidence

In its Initial Decision the Licensing Board made a number of factual findings on specific factors which the Licensing Board then included in its benefit-cost analysis. A number of these findings are either not supported by the record or are contrary to the evidence. Both the Licensing Board's interpretation of NEPA and these unsupported factual findings have led the Licensing Board to erroneous conclusions and ultimately to the imposition of unwarranted conditions in the full-term, full-power operating license for Indian Point 2. The nature of these specific findings to which Applicant's exceptions are addressed are such that in particular cases modification of even one of these findings would require a modification in the ultimate conclusions reached by the Licensing Board. For example, if the Appeal Board found that there is most likely a ten percent rather than an 80 percent Hudson contribution to the Middle Atlantic fishery the Licensing Board's decision that once-through cooling may not continue beyond May 1, 1978 would obviously be unfounded. Indeed even if the Appeal Board only found that the record did not support an 80 percent Hudson contribution, the Licensing Board's economic evaluations would be seriously tainted. If it determined that Applicant's research program would likely resolve

the "important questions" at issue the condition requiring the cessation of operations with once-through cooling after May 1, 1978 would be unsupported. A determination that rearing or stocking striped bass was "a viable alternative" for consideration would require a modification in the Licensing Board's ultimate condition.

In this section Applicant will demonstrate the Licensing Board's errors in resolving controverted factual matters in this proceeding.

A. Exception 7.

> "The finding that the Hudson River may supply as much as 80 percent of the recruits to the Middle Atlantic fishery and that 20 percent is the lower end of the range of possibilities. (Page 63)"

The importance of the issue concerning the extent to which the Hudson River striped bass population contributes to the Middle Atlantic striped bass fishery is underscored by the Licensing Board's recognition that "[t]he kind and urgency of measures taken to maintain the population might be entirely different if protection of the Hudson River fishery were the major consideration."[70/] Although the Licensing Board appears to appreciate the extreme importance of this issue, its resolution not only is contrary to the evidence[71/] but also contravenes the very essence of NEPA.

70/ Initial Decision at 59.

71/ Applicant's Proposed Findings at 109-118 (Finding Nos. E1 through E14).

Although the Licensing Board candidly finds that the information currently available is not adequate "to provide clear and statistically supportable answers to the many questions about striped bass origins ..."[72] the Licensing Board seeks to establish a basis for imposing an irretrievable commitment for cooling towers in 1978 by finding that the Hudson River "may supply as much as 80 percent of the recruits to the Middle Atlantic fishery." The Licensing Board does so on opinions of two witnesses, Dr. Philip Goodyear and Mr. John Clark,[73] which are neither supported by the scientific community nor by the very investigators who conducted the tagging studies on which the erroneous opinions are based.[74]

The incongruity of the Board's reasoning is highlighted by the Board's finding that the evidence demonstrates that "[f]or several decades scientists have concluded that most of the Atlantic coastal

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72/ Initial Decision at 62.

73/ Mr. Clark based his opinion largely on that of Dr. Goodyear which in turn rested heavily on Dr. Goodyear's regression analyses. See note 74 infra. Tr. 8561-62.

74/ Applicant's Proposed Findings at 111-15 (Finding Nos. E4-E9). In its Initial Decision the Licensing Board also found that the regression analyses upon which the Regulatory Staff's position was based "do not provide a basis for choosing between the positions of the parties." At 62. The regression analyses were one of the cornerstones of the Regulatory Staff's position. See also Applicant's Proposed Findings at 110-11, 115-16 (Finding Nos. E3, E10-E11).

migratory stock came from sources south of the Hudson River."[75] On the basis of a new, unproven albeit "logical"[76] hypothesis, however, the Licensing Board is prepared to take "urgent measures."

The Licensing Board's finding that the lower end of the range of possibilities for the percentage of contribution to the Middle Atlantic fishery is 20 percent simply ignores the evidentiary record.[77] Even though the Licensing Board recognizes that the analyses by Applicant's witnesses result in a determination, consistent with extensive scientific literature and fishery statistics, that the Hudson River contributes not more than 5 to 10 percent to the Middle Atlantic population and even though the Licensing Board also finds this position "logical," the Licensing Board arbitrarily determines that 20 percent should be the lower range of its estimate.[78]

The Board has found that the evidence is inadequate to determine the Hudson contribution to the mid-Atlantic except that such contribution

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75/ Initial Decision at 62.

76/ Id.

77/ See note 71 supra.

78/ It should be noted that at one point in the hearing Mr. Clark, the witness for the intervenors, stated that the Hudson River's contribution to the Middle Atlantic fishery is "somewhere between 10 and 80 percent." Tr. 8460. When pressed by the Board for clarification of his position, Mr. Clark adjusted his estimate the next day to 80 percent. Tr. 8562-65.

spans 20 to 80 percent. (In other words, there is a possible error as great as 400 percent in choosing a particular percentage as representing the contribution of the Hudson River.) Then, for purposes of the benefit-cost analysis the Licensing Board assumes a maximum impact of 80 percent reduction.[79] In doing so the Board was in error.

B. Exception 8.

> "The finding that the '[u]se of Hudson River water for once-through cooling of power plants in the striped bass spawning and nursery areas must be considered as the possible cause if a continuing decline should occur in the Middle Atlantic striped bass fishery.' (Page 63) (emphasis added)."

This finding has no support in the record. The evidence demonstrates and the parties agree that natural fluctuations have occurred and are expected to occur in the mid-Atlantic striped bass populations.[80]

79/ See note 89 infra.

80/ Responses to Questions by John P. Lawler, Ph. D., Quirk, Lawler & Matusky Engineers on the Sensitivity of the Model Presented in the Testimony of October 30, 1972 on the Effect of Entrainment and Impingement at Indian Point on the Population of the Hudson River Striped Bass, Feb. 5, 1973 ("Lawler on Sensitivity, Feb. 5") (follows Tr. 9405) at 9; Additional Testimony of John P. Lawler, Ph. D., Quirk, Lawler & Matusky Engineers on the Contribution of Chesapeake Bay to the Striped Bass Fishery in the Middle Atlantic States, April 20, 1973 (follows Tr. 11044) at 15; Redirect-Rebuttal Testimony of Dr. C. P. Goodyear, Factors Related to Hudson River Striped Bass Population, April 9, 1973 (follows Tr. 10826) at 9-11; Tr. 10045-47, 11341-43, 11354-58, 11363-65.

Therefore, a decline in the striped bass population after the operation of Indian Point 2 with a once-through cooling system may very well not be the result of such operation.[81]

C. Exception 6.

> "The conclusion (not supported by Applicant's testimony) that 'Applicant's conservative calculations' show certain reductions in the striped bass population due to operation of Indian Point 1 and 2, reflected in the finding that:
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> > '... the Board concludes that the impact of one year of plant operation is unlikely to be as great as is predicted by the Staff and HRFA. However, Applicant's conservative calculations show reductions in striped bass population of 20 percent in the fifth year and 35 percent in the tenth year for operation of the Indian Point Unit Nos. 1 and 2, and 40 and 60 percent for operation of all plants now on the river, including Unit Nos. 1 and 2.' (Page 51)"

This conclusion is misleading and not supported by the record. Applicant presented testimony in this proceeding estimating the impact of the operation of Indian Point 2 on the Hudson River striped bass fishery.[82] These estimates were based on impact parameters considered to be "reasonable though conservative."[83] At the Board's

81/ The Licensing Board's own views set forth in its Initial Decision at 50 support this conclusion.

82/ Applicant's Proposed Findings at 83-90 (Finding Nos. D29-39).

83/ Lawler on Entrainment and Impingement, Oct. 30, supra note 80, at S-2 through S-3, 77-80 and Table S-1. See Initial Decision at 43-44 where these estimates are set forth as Applicant's "best estimate" percentages.

request Applicant also introduced into evidence additional estimates of the impact on the Hudson River striped bass in order to compare the results of the Staff's model with those of Applicant's model. These estimates were based on all f factors[84] equal to one and no compensation.[85] Applicant specifically testified that this was not "Applicant's conservative case." Applicant further testified that these estimates were not based on realistic parameters and did not accurately reflect the conditions in the Hudson River.[86] Nevertheless, the Licensing Board adopted these estimates and called them Applicant's "most conservative" estimates.[87] Although the Licensing Board specifically rejected the Staff's model predictions for the percentage reduction of striped bass during the first year, the Licensing Board employed estimates for five and ten year operation based on parameters similar to those used for

84/ See note 59 supra.

85/ Lawler on Sensitivity, Feb. 5, supra note 80, at 1-16; Additional Testimony of John P. Lawler, Ph.D., Quirk, Lawler & Matusky Engineers, on the Multiplant Effects on the Hudson River Striped Bass Using the Run Conditions of Cases 14 and 16 Given in the February 5, 1973 Sensitivity Testimony, April 20, 1973 (follows Tr. 11044) at 1-2; Tr. 7419, 7782, 10355-56.

86/ Tr. 9812-15.

87/ Initial Decision at 43-44.

the rejected predictions in evaluating the impact of once-through cooling.[88/]

D. Exception 9.

> "The finding that '$16 million per year [is] the value of the maximum long-term impact on the striped bass fishery of operation of Unit Nos. 1 and 2 (and of all other plants on the Hudson River) with once-through cooling systems.' (Page 106)"

The Licensing Board's finding is not supported by the evidence. The Board in proffering a value for the "maximum long-term impact" has assumed total annihilation of the Hudson River contribution to the Middle Atlantic fishery.[89/] The parties did not offer, and the record simply does not support a contention that annihilation of striped bass (i.e., $16 million per year) will result from the operation of Indian Point 2 until September 1, 1981 with its once-through cooling system. Injecting this value into this proceeding is unreasonable and erroneous.

88/ For a discussion of the Licensing Board's error in requiring the use of "most conservative" estimates generally, see Part II.B. supra.

89/ The Licensing Board apparently values the maximum long-term impact on the striped bass fishery by taking 80 percent (the Board's estimated maximum contribution to the Middle Atlantic fishery) of $20 million (the estimated value of the Middle Atlantic striped bass fishery).

E. Exception 10.

> "The finding that '[a]t the end of five years the maximum impact for striped bass would be a maximum of $3 million per year and at the end of ten years it would be a maximum of $6 million per year' (Page 106), and that the monetary cost of the reduction in recruitment to the Middle Atlantic striped bass population would be $1.4 million to $5.6 million in the tenth year. (Page 67)"

The Licensing Board's finding is unreasonable, contrary to the evidence in the record and contrary to law. Again the Licensing Board has compounded errors in order to bootstrap an argument for the economic depletion of the mid-Atlantic region. Beginning with the erroneous assumption that the Hudson contributes a maximum of 80 percent and a minimum of 20 percent to the mid-Atlantic[90/] the Board then imposes the Applicant's so-called "most conservative estimate"[91/] to derive the estimated economic value of the reduction in recruitment in the tenth year. Again the Board, in its evaluation for benefit-cost purposes, takes the unwarranted approach[92/] of

90/ See Part III, Section A supra.

91/ See Part III, Section C supra.

92/ See Part II, Section B supra.

applying only the maximum estimates[93] (which Applicant submits are contrary to the evidence). Even after the Board applies its rather arbitrary percentages it concludes:

> "On the basis of estimates of monetary values alone, the Board finds that the benefits, to the extent they can be quantified, to be derived from installation of a closed-cycle cooling system on Unit No. 2 are unlikely to approach the cost. This must certainly be true over the next ten years...."[94]

The Licensing Board also concludes that "[t]he actual impact on the striped bass fishery may be much less."[95] The evidence introduced by the Applicant demonstrates that the lower range of the estimates for recruitment to the mid-Atlantic is 5 percent,[96] and that the impact on the striped bass population from the operation of Indian Point 1 and 2 for five and ten years would be 3 and 5 percent respectively.[97] Although the Licensing Board erroneously uses its "conservative" estimates to quantify this environmental impact, the Licensing Board has not rejected Applicant's estimates of long-term impact. Applying Applicant's estimates,

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93/ Initial Decision at 106.

94/ Id. It should be noted that the Board found that the maximum impact for striped bass would be a maximum of $5.6 million per year at the end of ten years or in 1983. Applicant's research program is scheduled to be completed in 1977.

95/ Id.

96/ Applicant's Proposed Findings at 116-17 (Finding No. E12).

97/ Applicant's Proposed Findings at 84-87 (Finding Nos. D32 and D34).

the quantification of the five and ten year impact would be $30,000 and $50,000 respectively rather than $3 and $6 million respectively. This is a much more reasonable estimate of the impact of once-through cooling on the striped bass fishery.

F. Exception 11.

> "The finding that 'one must expect' that there will be a serious adverse impact on other species of fish using the Hudson River in the vicinity of Indian Point as a spawning and nursery ground due to the operation of the once-through cooling system, reflected in the finding that 'one must expect that the impact of once-through cooling on the populations of those fishes will be similar to the impact of the population of striped bass.' (Pages 69, 101)"

This finding is not supported by the record. The record contains for the most part unsubstantiated speculations relating to the adverse impact on fish species other than striped bass.[98/] Indeed the Licensing Board states that "[f]or most of the species, nothing about the magnitude of the impact of once-through cooling is available in the testimony of this proceeding." While the Board concludes that "the data available do not permit any firm conclusions to be drawn concerning the impact

98/ Initial Decision at 68.

of once-through cooling of Unit Nos. 1 and 2 on the populations of other species of fish in the Hudson River"[99] the Board takes the same "data" and concludes that "one must expect" that the impact on other fish populations will be similar to that on the striped bass.[100] Although the Licensing Board's evaluation of the maximum long-term impact on the striped bass fishery does not include the effect on other fish species,[101] such consideration is implicit in the Board's ultimate conclusion.[102]

The Board's treatment of this subject is even more alarming when one considers the underlying rationale of the Board's action. Not only does the Board rely on mere conjecture, but it blatantly demonstrates its inaccurate interpretation of NEPA. Since there may

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99/ Initial Decision at 68-69.

100/ In fact, the record is contrary to this finding. Striped bass is anadromous and Indian Point lies in the migratory path of the striped bass. The impact on a resident species such as white perch, therefore, which is abundant and non-migratory, and whose eggs are adhesive would not be the same. Final Environmental Statement Related to Operation of Indian Point Nuclear Generating Plant, Unit No. 2, Vol. 1, Sept. 1972 (follows Tr. 6271) ("FES") at A-II-16. It should be emphasized, of course, that the Licensing Board did not make "firm conclusions" as to the impact of the operation of Indian Point 2 on the striped bass population.

101/ Initial Decision at 106.

102/ Id. at 107-8.

be an adverse impact on other fish species and, consequently, such adverse impact may be important to the ecosystem, ergo the Licensing Board reasons that a closed-cycle cooling system must be installed by May 1, 1978. Such an interpretation of NEPA should not be allowed to stand.

G. Exception 13.

> "The finding that the '... data already available or currently being obtained are sufficient for the Applicant to submit a satisfactory environmental report to the Staff by March 1, 1974.' (Page 83)
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> "(a) The finding that twelve months is not needed for environmental studies for cooling towers. (Page 114, item M27)
>
> "(b) The finding that an additional three months is not required for report preparation. (Page 115, item M28)
>
> "(c) The finding that the cooling tower studies commenced on May 1, 1973, reflected in the following statement on page 82:
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> > 'This schedule also reflects a slippage from February 1973 to May 1973 in the beginning of the environmental studies by the Applicant.'"

The Licensing Board's erroneous determination that "a satisfactory environmental report" can be submitted to the Staff by March 1, 1974 [103/] is based upon three subsidiary findings which are unsupported by the evidence.

(a). The Licensing Board found that 12 months is not needed for environmental studies for cooling towers. [104/] Whether such environmental

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103/ Initial Decision at 83; Id. App. A at 5, Condition 2.E.(2).

104/ Initial Decision at 114, item M27.

studies would be necessary was not an issue in this proceeding.[105] Applicant testified that these studies included studies of meteorology, salt deposition, acoustic emissions and blowdown as well as consideration of the impact on land, air and the community.[106] The Regulatory Staff agreed that it was necessary to study the meteorology, the impact of cooling tower blowdown and effects of salt deposition on plant life.[107] The potential problem of fogging and icing on the roads and river was also considered important in view of their extensive use in the area as means of transportation. A question of visual impact on historical sites such as the Stony Point Battlefield and the Palisade Interstate Park was also raised in this proceeding.[108]

The Staff has stated that three months to a year would be required for design studies.[109] In view of the Staff's testimony that environmental

105/ Implicit in the Licensing Board's condition requiring Applicant to submit an economic and environmental evaluation of an alternative closed-cycle cooling system to the Commission by March 1, 1974 is the determination that insufficient information is available at this time to make a satisfactory evaluation as to the environmental impact of an alternative cooling system for Indian Point 2. Indeed in its Initial Decision the Licensing Board stated that "data already available or currently being obtained are sufficient for the Applicant to submit a satisfactory environmental report to the Staff by March 1, 1974." Initial Decision at 83 (emphasis added).

106/ Testimony of Carl L. Newman, Vice President, Consolidated Edison Co. of New York, Inc. on Alternative Closed-Cycle Cooling Systems at Indian Point 2, Oct. 30, 1972 (follows Tr. 6254) ("Newman on Alternative Cooling, Oct. 30") at 4.

107/ Tr. 6966, 6981.

108/ FES, Vol. I, supra note 100, at II-9.

109/ Redirect-Rebuttal Testimony of George Knighton, Supporting Information for Staff Testimony on Cooling Towers, Feb. 22, 1973 (follows Tr. 9892) at 3.

studies were necessary, the period designated for "design studies" presumably would include time for the environmental studies. HRFA did not submit testimony contradicting this requirement for environmental studies.

The 12-month period as stated in Applicant's testimony is necessitated by the requirement to obtain meteorological data at a height representative of meteorological phenomena applicable to natural draft cooling towers (400 feet and above).[110/] Meteorological data for a full year is necessary because, for example, data from September-December is hardly relevant for assessing the environmental effects for May-July.

On several occasions during the course of the hearing, the Chairman of the Licensing Board questioned whether existing meteorological data might be sufficient. In each case Applicant responded that existing data, although quite extensive at lower levels, did not exist for a level which would be relevant in the assessment of the impact of a natural draft cooling tower.[111/] No party contested this statement.[112/] In fact, such data acquisition is a requirement of the Environmental Technical Specifications.[113/] Accordingly, if this finding is based on the Board's belief that existing meteorological

110/ Tr. 9709-10, 9729.

111/ Tr. 9542, 9729, 10463-68.

112/ Applicant has been informally told by Regulatory Staff meteorologists that existing data are inadequate for assessing the impact of natural draft cooling towers at Indian Point.

113/ Appendix B to Facility Operating License DPR-26, Environmental Technical Specification Requirements for Once-Through Cooling at 4-8.

data are sufficient, it is based on the Board's speculation and not on facts contained in the record.[114/]

An essential part of Applicant's environmental study is the impact of salt deposition on flora in the Indian Point area.[115/] No cooling tower using saline water is in operation or under construction in an area that has flora of the type found in the Indian Point area.[116/] Applicant has retained Boyce Thompson Institute to conduct this study.[117/]

The record does not support the concept that meaningful data from this study could be available in time to submit a report by March 1, 1974. A requirement that cooling towers be constructed prior to the completion of these environmental studies would be directly contrary to the principles embodied in NEPA.

(b). The Licensing Board's finding that three months is not required for preparation of a report[118/] is not supported by the record. Applicant's schedule for environmental studies for an alternative cooling system included

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114/ The Licensing Board appears to recognize that the Applicant will not have complete data by March 1, 1974 by stating that "[t]he report can be amended if data obtained from February to May 1974 alter any of the conclusions." Initial Decision at 83.

115/ Tr. 10463-68.

116/ Tr. 10466-70.

117/ Tr. 10528-29.

118/ Initial Decision at 115, item M28.

three months for analyzing the data and preparing a report on the results of this effort.[119/]

It is beyond question that raw data cannot be submitted to a regulatory agency and be called an environmental report. If the report is to be anything more than a pro forma submission, the data must be evaluated and analyzed. Time is required to make a careful evaluation and to determine the proper conclusions indicated by the data. The report must then be drafted, reviewed by appropriate experts and company officials and a final draft written. In view of the volume of data necessary, three months is an expedited schedule for this activity.

The record contains no testimony directly contradicting Applicant's contention. Presumably this finding is based on a "feeling" by the Licensing Board not supported by the evidence in the record.

(c). The condition that an economic and environmental evaluation of alternative closed-cycle systems be submitted by March 1, 1974 is also based upon the Licensing Board's error that the period required for environmental studies commenced in May 1973. This ignores Applicant's testimony in July 1973 that the schedule for the meteorological studies, the critical path item for the studies, had slipped "several months."[120/] Therefore,

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119/ Redirect-Rebuttal Testimony of Carl L. Newman, Vice President, Consolidated Edison Co. of New York, Inc. on Alternative Closed-Cycle Cooling Systems at Indian Point 2, April 9, 1973 (follows Tr. 10339) ("Newman on Alternative Cooling, April 9"), Exh. F.

120/ Tr. 31, July 2, 1973.

the Board's condition should reflect a slippage until at least several months after May 1973 in the beginning of Applicant's environmental studies.[121] With the meteorological studies commencing in September 1973, an economic and environmental evaluation of alternative closed-cycle cooling systems can be submitted to the Commission on December 1, 1974.

H. Exception 14.

> "The finding that '... it is reasonable to expect that the reviews [by appropriate agencies] can be completed and the necessary approvals for the closed-cycle cooling system can be obtained before March 1, 1975.' (Page 83)"

The Licensing Board specifically found that twelve months is a reasonable time for a review by regulatory agencies of Applicant's economic and environmental evaluation of closed-cycle cooling systems for Indian Point 2.[122] The Board's finding that such review can be completed by March 1, 1975 apparently is based, therefore, on the Board's finding that an environmental evaluation can be submitted to the Commission by March 1, 1974.[123] Accordingly, since the record demonstrates that the environmental evaluation should be submitted on December 1, 1974, the Board's finding that

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121/ The record does not specifically reflect the fact, however, that Applicant unfortunately encountered labor difficulties in the construction of the meteorological tower and, therefore, the tower did not commence operation until September 1973.

122/ Initial Decision at 109; Applicant's Proposed Findings at 193 (Proposed Finding No. M29).

123/ See Part III, Section G supra.

regulatory approvals could be obtained by March 1, 1975 should be modified to read by December 1, 1975.[124/]

I. Exception 15.

> "The finding that cooling towers could be completed at Indian Point within 45 months (December 1, 1978) after appropriate State and Federal approvals had been received. (Page 83)"

The Licensing Board's finding is arbitrary and not supported by the record. Applicant testified that three months are required to finalize engineering design, two months for awarding the contract, three months to obtain vendor information and one month to mobilize a work force.[125/] The Licensing Board accepted these proposed findings.[126/] The difference between the Licensing Board and the Applicant is therefore confined to Applicant's testimony that 2-1/2 years would be required for construction of the cooling tower system after completion of excavation, and an additional 12 months would be required for excavation.[127/] The Board, therefore, allows 36 months for activities which Applicant asserts will require 42 months.

124/ Id. In any event the Licensing Board should have provided additional time for regulatory approvals. The Board specifically states that "[t]he report can be amended if data obtained from February to May 1974 alter any of the conclusions." Initial Decision at 83. If at the completion of Applicant's environmental studies significant additional data is obtained and submitted to the appropriate regulatory agencies, it is unreasonable to assume that the schedule for regulatory approvals would not be extended. Therefore, the Licensing Board should have provided additional time for this item.

125/ Applicant's Proposed Findings at 194 (Finding Nos. M30 and M31).

126/ Initial Decision at 109.

127/ Applicant's Proposed Findings at 194 (Finding No. M32).

Applicant's estimates for its excavation schedule and for its construction schedule, based upon review and experience, are documented by extensive evidence in the record.[128] The Board's explanation for this difference is that Applicant's estimates for excavation and construction have varied to the degree that they are not "firmly established enough to reach conclusion."[129]

This finding is also contrary to the record. In its testimony of October 30, 1972 Applicant estimated that the construction time for the implementation of a closed-cycle cooling system (after completion of the preliminary items accepted by the Board) would require 44 months.[130] Subsequent to the submission of this preliminary estimate[131] Applicant continued to analyze the requirements for the construction of an alternative cooling system at Indian Point in order to reach a more definitive schedule. Applicant reviewed

128/ Applicant's Proposed Findings at 180-82 (Finding Nos. M3 and M5). The testimony of the Regulatory Staff and the intervenors does not controvert Applicant's estimates.

129/ Initial Decision at 115, item M32.

130/ Newman on Alternative Cooling, Oct. 30, supra note 106, Table A. A number of 36 months for field work is set forth on page 8 but is obviously in error in view of the other statements contained in this testimony.

131/ It was not until September 1972 with the publication of the Regulatory Staff's Final Environmental Statement that the construction of an alternative cooling system was proposed by the Regulatory Staff.

actual excavation experience at the Indian Point site. That review resulted in lengthening the estimated time required for excavation from 6 months to 12 months but overall construction duration was reduced to 42 months.[132/]

This change from 44 months to 42 months was the only change Applicant made in its estimate of construction time. Such a change resulting from a further analysis of a preliminary schedule could hardly support the Licensing Board's description of Applicant's schedule "as not being firmly established enough to reach conclusion."

J. Exception 16.

> "The finding that '[e]vidence does not demonstrate need for 5 months' outage in addition to normal refueling outage.' (Page 114, item M13)"

This finding is not supported by the record. Applicant's uncontroverted testimony sets forth both the time required for such outage and the items which must be completed during such outage.[133/] Neither the intervenors nor the Regulatory Staff ventured an estimate as to the length of time required for the outage, but both agreed that inclusion of the cost of the outage in the computation of additional generating costs for a closed-cycle cooling system

132/ Newman on Alternative Cooling, April 9, supra note 119, at 30 and Exh. F.

133/ Applicant's Proposed Findings at 185 (Finding No. M13); Newman on Alternative Cooling, Oct. 30, supra note 106, at 13; Redirect-Rebuttal Testimony of Carl L. Newman, Vice President, Consolidated Edison Co. of New York, Inc. on Alternative Closed-Cycle Cooling Systems at Indian Point 2, Feb. 5, 1973 (follows Tr. 9405) at 3-4 and Exh. 3.

at Indian Point was proper.[134] Accordingly, the Licensing Board is in error.

K. Exception 17.

> "The finding that Applicant's excavation and construction schedule estimates for the implementation of a natural draft cooling system at Indian Point 2 were not 'firmly established enough to reach conclusion' as to excavation and construction time (Page 115, item M32), and that '[t]he schedules presented by the Applicant include very liberal allowances of time for all construction operations and contingencies.' (Page 82)"

These findings are not supported by the record.[135] In fact, the Licensing Board's finding that Applicant's construction schedule includes "very liberal allowances" is most unusual in view of the virtual unanimity among the parties as to actual construction time required for a closed-cycle cooling system at Indian Point.

Applicant testified that 3-1/2 years would be required for construction, including one year for excavation.[136] The Regulatory Staff stated

134/ Tr. 6934, 8939. In its Initial Decision the Licensing Board accepted Applicant's cost estimate for the required outage for the installation of a natural draft cooling tower system which was based on an outage of 5 months in addition to a normal refueling outage (2 months). Initial Decision at 109, item M14.

135/ For a discussion of the Licensing Board's finding that Applicant's excavation and construction schedule estimates were not "firmly established enough to reach conclusion," see Part III, Section I supra.

136/ See Part III, Section I supra.

that construction time would be 2 to 3 years. At the time the Regulatory Staff testimony was prepared, the Staff did not have the information or the experience with excavation at the Indian Point site and, therefore, did not include an excavation schedule which considered the exigencies of the site.[137] Accordingly, Applicant's schedule is consistent with the upper end of the Regulatory Staff's estimate.[138] Applicant's testimony is also generally consistent with the testimony of HRFA's witness on this subject when the special problems of excavation at the Indian Point site are taken into account.[139] In view of this record, there is no foundation for the Board's statement that Applicant's schedule was "very liberal."

The subject of construction schedule contingencies was not addressed in the testimony of any party. It is entirely possible that contingencies, such as strikes or labor difficulties, for example, might occur and delay construction beyond the time stated by Applicant. Because of the inability to predict such matters with accuracy, Applicant did not include any factor in its construction schedule for such contingencies. Accordingly, the

137/ See Applicant's Proposed Findings at 194 (Finding No. M32). See also note 128 supra.

138/ The lower end of the Regulatory Staff's estimate reflects the Staff's lack of experience at the Indian Point site.

139/ Applicant's Proposed Findings at 195 (Finding No. M33), accepted by the Licensing Board in its Initial Decision at 109.

statement that the schedule presented by Applicant included a very liberal allowance for contingencies is erroneous.[140/]

L. Exception 18.

> "The ruling that there will be an adequate opportunity for review by appropriate regulatory agencies of the results of Applicant's research program prior to the start of construction of an alternative closed-cycle system in the summer of 1975, assuming a continuing requirement for termination of operation with once-through cooling on May 1, 1978. (Pages 83, 101)"

The Licensing Board properly attempts to provide an opportunity for a reevaluation of the environmental impact of the operation of Indian Point 2 with its once-through cooling system, but the time schedules provided by the Board as well as the continuing requirement for termination of operation with once-through cooling on May 1, 1978 are inadequate to provide relief no

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140/ The Licensing Board states that the Applicant "has expressed the conviction that a closed-cycle cooling system would be an unnecessary and unjustifiable expense for Unit No. 2" and then concludes that Applicant's schedules include "very liberal allowances ...." Initial Decision at 82. To the extent the Licensing Board's conclusion was somehow influenced by the juxtaposition of these two statements, it is erroneous. The record clearly demonstrates that the Applicant has proposed that an operating license for Indian Point 2 include a condition requiring that, unless otherwise authorized by an amendment to such license following review of the results of Applicant's ecological study program, operation of Indian Point 2 after September 1, 1981 be permitted only if a closed-cycle cooling system shall have been installed by that date. Applicant's Proposed Findings at 245. Applicant's position is that, based upon an analysis of the factors considered in this proceeding, a requirement for a closed-cycle cooling system by May 1, 1978 is "an unnecessary and unjustifiable expense for Unit No. 2." The record demonstrates, however, that despite its position, Applicant has presented in this proceeding a schedule for construction of a closed-cycle cooling system which is based on extensive experience and a realistic understanding of the Indian Point site.

matter how favorable the results of Applicant's research program.[141/] The Licensing Board has apparently assumed that the studies completed by May 1, 1975 can be incorporated into an application to the appropriate regulatory bodies and a decision made by those regulatory bodies prior to the required commencement of excavation. The record does not contain a scintilla of evidence to support such an assumption. Indeed, the history of this proceeding indicates the contrary. An amendment to the operating license for Indian Point 2 modifying the requirement for a closed-cycle cooling system in accordance with the results of Applicant's research program at that time could require extended proceedings before the Atomic Energy Commission. The controversial subject of such an amendment as reflected in the history of this proceeding supports this conclusion. Therefore, a ruling that Applicant could "apply for permission to delay the construction until the program has been completed" prior to the required commencement of construction clearly overlooks the time required for administrative action.

141/ The Licensing Board noted that all but three of Applicant's research reports are to be completed by May 1, 1975: "According to the Board's analysis of the schedules, excavation for the cooling tower need not begin until the summer of 1975 in order to provide a closed-cycle cooling system on a schedule that would terminate operation of the once-through system by May 1, 1978. If the results in the eight completed reports are as favorable as the Applicant expects, it should have sufficient evidence, before excavation starts, to apply for permission to delay the construction until the program has been completed." Initial Decision at 101.

If the Board intended to provide sufficient time only for the filing of an application and not for a determination on that application, then the ruling utterly fails to provide relief. Unless the Applicant is assured that the May 1, 1978 requirement would be extended, the risk of delaying excavation is too great for a public utility to assume regardless of the results of the research program, in view of its paramount obligation to furnish its customers a reliable and adequate supply of electric power.

M. Exception 19.

> "The finding that Federal income and property taxes should be excluded from the annual levelized cost for the implementation of cooling towers at Indian Point 2 and hence that such cost is 16 million dollars. (Pages 80-81)"

Federal income and property taxes are costs under proper accounting practices.[142/] The Licensing Board's exclusion of such taxes is based on the Board's incorrect finding that "federal income and property taxes ... are considered to be transfers within the economy."[143/] The concept of "transfers" in such context is misused. Economists define a "transfer in the economy" as a payment by the government for items other than goods and services, such as welfare payments or veterans' benefits. A payment by the government for goods and services is considered the same as a

142/ Newman on Alternative Cooling, April 9, 1973, supra note 119, at 20-21.

143/ Initial Decision at 80.

payment of a private person -- a part of national income and Gross National Product.[144/]

Accordingly, the portion of tax payments going to governmental expenditures such as welfare payments or veterans' payments might be considered a "transfer within the economy." But the portion of tax payments that the government uses to pay for goods and services are not "transfers within the economy" as understood by economists. Since the great majority of the tax payments are used by the government to pay for goods and services, such tax payments should be included in the cost of cooling towers.

Taxes might be disregarded if there were substantial identity between those bearing the costs of the taxes and those receiving the benefits. The costs of a closed-cycle cooling system will be borne by Applicant's electric customers who are located in New York City and Westchester County. Property taxes will be paid to the tax districts in the immediate vicinity of Indian Point. Federal taxes are used for the benefit of the entire population of the

144/ P. Samuelson, Economics, 154-55 (9th ed. 1973).

United States and, indeed, the world. Accordingly, it would be improper to eliminate these payments from cost computation.[145/]

N. Exception 21.

> "The Board's ruling as to alleged deficiencies in Applicant's research program reflected in the statements that:
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> "(a) '... the natural variations in the populations and phenomena being observed are so great as to make it unlikely that the Applicant can provide in a period as short as five years a statistically valid demonstration that the adverse impact of Unit No. 2 operations on the river ecology is acceptably small.' (Pages 99-100)
>
> "(b) '[t]he Applicant's studies will not provide a direct answer to the question' of the effect Indian Point 2 'operations may have on the Middle Atlantic striped bass fishery.' (Page 100) (emphasis added) and
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> "(c) '... Applicant's research program is unlikely to resolve the important questions ....' (Page 101) (emphasis added)"

Applicant's exceptions are directed to three separate findings by the Licensing Board directed to Applicant's seven-year study undertaken in

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145/ The Licensing Board's finding also appears to be based on the fact that Applicant's inclusion of these taxes as costs was "not entirely in accord with the Commission's guidelines." Initial Decision at 80. Regulatory Guide 4.2, Preparation of Environmental Reports for Nuclear Power Plants, March 1973 does not support the Board's finding. At 4.2-4 the Guide specifically states:

> "To provide specific and detailed guidance, the following 'Standard Format and Content of Environmental Reports for Nuclear Power Plants' has been prepared. While conformance is not required, the format and content described are acceptable to the regulatory staff."

See also Regulatory Guide 4.2 at 4.2-33 and 4.2-34.

1969 to provide empirical data on the effect of entrainment, impingement and chemical and thermal discharges on Hudson River biota.[146/] Applicant submits that the Licensing Board's findings are in error and that they are unsupported by the record. In particular, Applicant refers the Appeal Board to Applicant's Proposed Findings on the research program (Section O), especially Findings 09-020 and 023-028. The error in the Licensing Board's findings pierces the ultimate determinations made by the Licensing Board.

In sections (a) and (b) the Licensing Board appears to take the position that Applicant's research program is deficient in that it will not provide a "statistically valid" demonstration that the impact of once-through operation is acceptably small and further that it is deficient in that the program will not provide a "direct answer" to the question of once-through cooling on the mid-Atlantic fishery.

The Board has ignored several important points. The Board has already made a determination based on a pyramid of assumptions based on a minimum of data. On the basis of this data which certainly is not "statistically valid" the Board has determined that the adverse impact of Indian Point 2 has the potential to be unacceptably large. It has done this without a "direct answer" to the question concerning the adverse impact on the

146/ Applicant's Proposed Findings at 218-42 (Finding Nos. 02-030).

mid-Atlantic fishery.[147] Indeed it has done this primarily on the basis of the information gathered from the present results of Applicant's research program.

The Board, therefore, states that now the even more refined research program, which has already given results on which the Board and the parties have relied, cannot provide adequate information in sufficient time. The Board forgets its finding that a several year delay will not cause permanent damage[148] as well as the fact that its underlying assumption for the impact on the mid-Atlantic fishery is the overwhelming span of 20 to 80 percent.[149] In spite of the fact that its decision is not based on "statistically valid direct answers" the Board rejects the "valuable information"[150] which will come from this study because it is unlikely to give unequivocal answers to the "important questions."

In reaching its conclusion the Licensing Board demands that the research program prove the falsity of all the Board's exaggerated assumptions of the impact of once-through cooling. As demonstrated above, even if one of

147/ See Part III, Section A supra.

148/ Initial Decision at 100.

149/ See Part III, Section A supra.

150/ Initial Decision at 99. See also the Board's statement that "[s]tudies by the New York State Department of Environmental Conservation and the National Marine Fisheries Service during the next three years may help to resolve some of the questions with regard to the Hudson River source." Id. at 63.

these assumptions were false, the Board's position would not be supportable. Applicant submits that the research program will provide the necessary information for a rational decision to be made by 1977 whether closed-cycle cooling is actually required for Indian Point 2.

O. Exception 12.

> "The finding on page 98 that the State of New York (as opposed to the Attorney General of the State) fully supports the position of HRFA as expressed in the following portion of the decision:
>
> > 'HRFA asserts that data on hand give sufficient evidence of the serious impact that once-through cooling of Unit No. 2 could have on the Hudson River and related fisheries. HRFA does not oppose the imposition of a condition on the license requiring the Applicant to conduct research, but this requirement should in no way be accepted as an alternative for installation of an alternative cooling system at a date no later than that suggested by the Staff and preferably much earlier. The State of New York fully supports this position.' (Page 98)"

It is misleading for the Licensing Board to refer to the Attorney General of the State of New York as the "State of New York."[151/] While the Attorney General may espouse a particular viewpoint or support the position of a party to this proceeding, he does so not as the sole authorized representative of the State of New York but rather as one representative of that State's interest. Indeed, the State is also represented in this

151/ See, e.g., Initial Decision at 98.

proceeding by the New York State Atomic Energy Council which has not taken a position on environmental matters.

P. Exception 23.

> "The finding that the Licensing Board 'does not presently accept rearing and stocking of striped bass as a viable alternative to a closed-cycle cooling system.' (Page 90)"

This finding reflects the Licensing Board's misconception of Applicant's position. Although Applicant considers rearing and stocking as a potential alternative to a closed-cycle cooling system, Applicant has proffered the position that rearing and stocking at this time is a method to assure that permanent damage will not be done to the striped bass fishery by the operation of Indian Point 2 with its once-through cooling system through September 1, 1981.[152/] During such operation, however, as a part of its research program Applicant will evaluate the efficacy of rearing and stocking as a viable alternative to a closed-cycle cooling system.[153/]

152/ Applicant's Proposed Findings at 198 (Finding No. N5).

153/ Applicant's Proposed Findings at 233 (Finding No. 020).

IV.

Applicant's Request For Relief

Applicant requests the Appeal Board to affirm the Licensing Board's authorization to issue a full-term, full-power operating license for Indian Point 2. Applicant further requests the Appeal Board to modify the findings, conclusions or rulings set forth in the Licensing Board's Initial Decision dated September 25, 1973 in accordance with this brief filed in support of Applicant's exceptions and to modify the conditions imposed by the Licensing Board as indicated below:

(1) Condition 2.E.(1) (App. A, page 5). The Licensing Board's condition that "operation of Indian Point Unit No. 2 with the once-through cooling system will be permitted until May 1, 1978 and thereafter a closed-cycle cooling system shall be required" should be modified to read:

> "Operation of the facility with its presently designed once-through cooling system shall be permitted until September 1, 1981. Unless otherwise authorized by an amendment to this operating license following review of the results of licensee's ecological study program operation shall be permitted after September 1, 1981, only if a closed-cycle cooling system shall have been installed by that date."

(2) Condition 2.E.(2). The Licensing Board's requirement that Applicant shall submit to the Commission an evaluation of the economic and environmental impacts of an alternative closed-cycle cooling system by March 1, 1974 should be modified to provide that Applicant shall submit to

the Commission an evaluation of the economic and environmental impacts of an alternative closed-cycle cooling system by December 1, 1974.

Accordingly, the Licensing Board's condition should be modified to read:

> "Evaluation of the economic and environmental impacts of an alternative closed-cycle cooling system shall be made by the licensee in order to determine a preferred system for installation. This evaluation shall be submitted to the Atomic Energy Commission by December 1, 1974 for review and approval prior to construction."

Respectfully submitted,

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