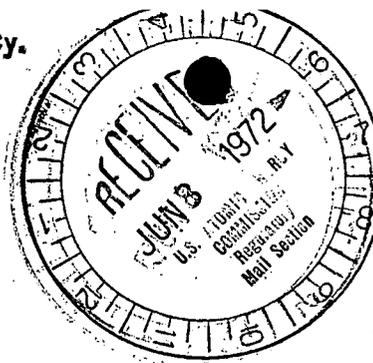


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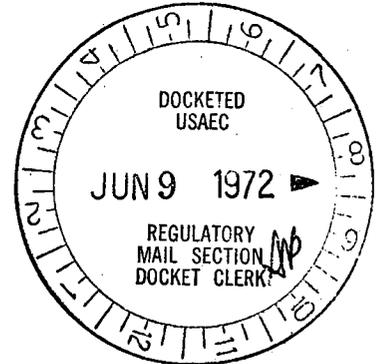


May 30, 1972

U. S. Atomic Energy Commission
Washington, D. C. 20545

Attention: Director, Division of Radiological
and Environmental Protection

Re: Indian Point Unit No. 2
Docket No. 50-247



Dear Sirs:

Consolidated Edison Company of New York, Inc. (Con Edison) respectfully submits its comments on the Draft Detailed Statement (the Statement) on the environmental considerations related to the proposed issuance of an operating license to Con Edison for the Indian Point Unit No. 2 nuclear generating plant, dated April 13, 1972, prepared by the Atomic Energy Commission's Regulatory Staff. These comments are submitted pursuant to notices in the Federal Register on April 20, 1972 and May 2, 1972.

This letter contains comments on the major features of the Statement. Enclosed are nine appendices. Appendix A consists of suggested detailed corrections to the Statement. Appendices B-1 to H are detailed analyses in support of the positions indicated in this letter.

1. Conclusions

Con Edison agrees with the conclusions contained in the Statement that Indian Point should be allowed to operate subject to an operational monitoring program. Con Edison believes that this conclusion represents the best approach to satisfy the public interest in light of all relevant factors.

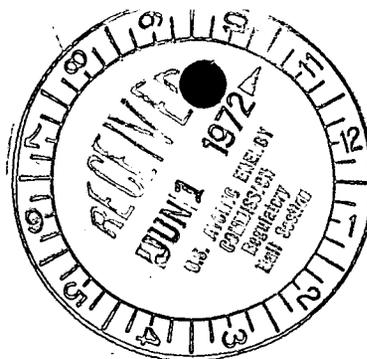
It is difficult to predict with accuracy the quantitative environmental impacts of a major facility such as Indian Point 2 on the complex aquatic ecosystem of the Hudson River. The Statement notes that, "Existing information is insufficient to accurately predict the degree to which the potential damage

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1. Conclusions

Con Edison agrees with the conclusions contained in the Statement that Indian Point should be allowed to operate subject to an operational monitoring program. Con Edison believes that this conclusion represents the best approach to satisfy the public interest in light of all relevant factors.

It is difficult to predict with accuracy the quantitative environmental impacts of a major facility such as Indian Point 2 on the complex aquatic ecosystem of the Hudson River. The Statement notes that, "Existing information is insufficient to accurately predict the degree to which the potential damage

will eventually take place during operation." Con Edison agrees with the basic point that additional data and analyses are desirable to provide a better basis for professional opinions. The only way all such data can be obtained is to commence operations and study the actual impacts. Con Edison will cooperate with the Commission's Staff, the Hudson River Policy Committee and the Hudson River Fishermen's Association in monitoring and study programs sufficient to obtain the information required by the Commission. A general description of these programs was set forth in Supplement 1 to our Environmental Report. More detailed information was furnished to the Staff on March 8, 1972. A further description is enclosed as Exhibit G.

Some of the desired data have already been obtained but were not available to the Commission in written form when the Statement was prepared. Most of this material was introduced into evidence at the hearing conducted by the Atomic Safety and Licensing Board (ASLB) on April 5, 1972. The Commission should utilize these new data in the preparation of the Final Detailed Statement. Many of the comments contained herein are based on these data. Enclosed as Exhibit H is this testimony which is referenced in this letter.

The body of the Statement appears to be written on the basis that the Statement should maximize estimates of environmental damage and minimize estimates of lack of such damage. Con Edison believes that this approach is contrary to law. The National Environmental Policy Act of 1969 calls for a detailed statement on the environmental impact of the proposed Federal action, i.e., the issuance of an operating license for Indian Point 2. The derivative requirement is thus an impartial objective analysis of environmental impacts. The Statement, however, describes the conceivable potentials for harm - in effect a speculative maximum damage rather than an impartial objective assessment. The Statement does not indicate either a minimum or likely damage level.

The basis which apparently guided the preparation of the Statement leads to biased estimates of environmental damage and renders it impossible to perform an objective analysis of benefits and costs. The undue emphasis on potential environmental damage without a corresponding analysis of potential lack of damage weights the scales unevenly so that a balance of benefits and costs is not practicable. The most fundamental decision which must be made in this case is whether the economic and

environmental costs of major changes to the plant are worth the benefits to be derived in environmental improvements. If the potential for environmental damage has been overstated, a correct evaluation is impossible, and the public interest is not served.

The most significant example of this is that an admittedly rudimentary mathematical model has been used to compute, on the basis of limited information on but a few of the natural influences on fish populations, an entrainment of 25% of the young-of-the-year fish each year. This might have been described as a small percent of the natural mortality to put the number in perspective. And, although the number neglects diurnal movements, natural migrations, transport and avoidance mechanisms, it is mentioned time and again throughout the Statement implying that the 25% loss due to entrainment will be a fact.

Other examples of the lack of objective analysis include omission from the Statement of several important facts. As noted in the Statement, Indian Point 1 has experienced over several years a problem of the collection of fish on the intake screens. Con Edison has successfully eliminated collections of large fish, and collections are now limited to fish approximately two inches in length which are generally immature, young-of-the-year fish. The only reference to size is a sentence that the fish are generally larger than 45-50 millimeters in length (V-33). The actual size is not given nor is there any statement as to the biological significance and natural mortality of the small size of these fish. Nor is there any mention of the findings of the AEC in their "Report of Inquiry Into Allegations Concerning Operation of Indian Point 1 Plant of Consolidated Edison Company" dated October 1971.

Another error concerns the temperature rise of circulating water passing through the plant. Con Edison intends to reduce the rate of flow during cold weather in order to reduce the problem of fish collections. The reduced rate of flow will produce a higher temperature rise, a ΔT of about 24°F. This does not present any problem with respect to thermal criteria because this mode of operation will occur only when river temperatures are low. The Statement does not clearly state that reduced flow will only occur during cold weather. Accordingly, the higher temperature rise during reduced flow might erroneously be added to summer temperatures and lead to the

erroneous conclusion that a problem of excessive thermal discharges exists. The Statement implies that this problem could exist (III-37).

2. Thermal Criteria

The Statement concludes that Con Edison has not adequately demonstrated compliance with New York State criteria for thermal discharges. Con Edison refers the Commission to the testimony of Dr. John P. Lawler on The Effect of Indian Point Units 1 and 2 Cooling Water Discharge on Hudson River Temperature Distribution which was submitted to the ASLB on April 5, 1972 (see Appendix H). Enclosed as Appendix B-1 is an analysis of Con Edison's differences with the Statement and an explanation of why Con Edison believes its analysis is correct. The Commission was also furnished with additional information on this subject in a report of Quirk, Lawler & Matusky Engineers entitled "Supplemental Study of Effect of Submerged Discharge of Indian Point Cooling Water on Hudson River Temperature Discharge" dated May 1972. This report is enclosed as Appendix B-2.

If the Commission should nevertheless conclude that thermal discharges may not meet State criteria at all times, the Statement should then include an analysis of the extent the criteria will be exceeded and the ecological significance of that fact. The Statement indicates that the Commission is primarily concerned with the standard of a 90°F maximum surface temperature at any point. This statement may result from a misunderstanding of our planned use of the circulating pump bypass or from the misleading temperature data in the Raytheon Report. Peak temperatures fluctuate from year to year. The Commission's analysis is based on peak temperatures which, if seen at all, would be seen rarely -- certainly not every year. The Statement should indicate the expected frequency and the extent of the surface area heated in excess of 90°F and the environmental impact of such an occurrence. The post-operational data that Con Edison proposes to collect will provide hard data with which to verify predictions.

The concern expressed by the Staff appears to be associated with the use of uncontrolled data collected for other purposes. See Appendix B-1. The Staff uses a maximum river temperature at the plant intake of 81°F (III-35). The temperature at the Indian Point 1 intake is monitored continuously.

In view of the voluminous data available on this subject, Con Edison considers 79°F (without recirculation) to be the highest water ambient temperature that can be experienced by the Indian Point intake at any time.

The Statement references data contained in the Report of Inquiry on Indian Point Unit No. 1 submitted by the Commission's Division of Compliance in October 1971. These data show three readings at 81°F and the balance of the readings are consistent with Con Edison's analysis. These three readings were not at the plant intake but were out in the river where they were influenced by the thermal plumes from Indian Point and Lovett. The same Report of Inquiry had data on intake temperatures which is not referred to by the Statement. (See Appendix B-1 for further details.)

The Statement contains a considerable discussion of the concept of net non-tidal flow (III-22 to 26). The Commission appears to agree with Con Edison that this phenomenon exists but hesitates to make a quantitative determination. Since the phenomenon exists, it is important to provide some quantitative statement of its effects. As is indicated in Appendix B-1, Con Edison has used the most conservative manner of estimating the effect of net non-tidal flow.

3. Dissolved Oxygen

Con Edison disagrees with the Statement concerning dissolved oxygen. Con Edison thought that its testimony before the ASLB and information which had been furnished to the Commission's Staff had removed any concerns about this question. In view of the comments contained in the Statement, Con Edison now submits as Appendix C a report of Quirk, Lawler & Matusky Engineers entitled "Effect of Indian Point Plant on the River Dissolved Oxygen." This report contains data on actual dissolved oxygen measurements taken at the intake and discharge of Indian Point 1 and a detailed analysis of this problem under varying conditions.

The Commission's concern on dissolved oxygen appears to be based on a few data points in a report of Raytheon Company. These data are inconsistent with other data obtained by Con Edison and data gathered at other power plants and is also inconsistent with predictions based on plant engineering design.

Con Edison examined the Raytheon data and found that it was incorrect due to faulty instrumentation. The Staff appears to agree with Con Edison's opinion on the Raytheon data (V-10), but nevertheless says that it is "not yet satisfied." Con Edison proposes to obtain post-operational data additional to that which it already has in order to satisfy the Commission on this point.

4. Chlorination

The Statement contains considerable discussion about the possible damage to aquatic organisms from chlorination. Con Edison has established procedures to minimize harmful effects, and indications are that it has succeeded.

Attached as Appendix D is an analysis of the chlorination program for Indian Point 1 and 2 and an explanation of the basis for Con Edison's disagreement with some of the matters discussed in the Statement. Con Edison also refers the Commission to the testimony of Dr. Gerald J. Lauer on the Effects of Chemical Discharges from Indian Point Units 1 and 2 on Biota and River Chemistry which was submitted to the ASLB on April 5, 1972 (see Appendix H). Dr. Lauer found by sampling at Indian Point 1 that entrained organisms generally are not destroyed by Con Edison's chlorination procedures at Indian Point 1. He states that this is probably due to the fact that the exposure time to high levels of chlorine is very brief as compared to the exposure time of the target organisms on the condenser tubes. He also reports that bioassay studies show survival of organisms at exposures comparable to those experienced by entrained organisms.

Much of the discussion of chlorination problems contained in the Statement appears to relate to an environment and species foreign to the Hudson River. Con Edison believes that observations in the Hudson River with Hudson River species are necessary before a determination can be made that a problem exists. The observations to date have indicated no problem. More data will be obtained as part of the continuing ecological studies when Indian Point 2 commences operation.

The Statement suggests that the discharge concentration of residual chlorine will be 0.5 ppm. Extensive data from operations at Indian Point 1 show a discharge concentration of

0.1 ppm or less. There is no reason for the residual levels at Indian Point 2 to be significantly different (see Appendix D). Under New York State rules 0.5 ppm is a legal maximum.

Furthermore, the discussion of potential toxic effects at low chlorine levels is based on a small portion of the literature and on long periods of exposure and deals principally with fresh water fish. The Statement should note that other portions of the literature show no toxicity at the levels expected from Indian Point operations (see Appendix D).

Con Edison has commenced a program to establish a further reduction in the frequency of chlorination. This program is described in Appendix D.

5. Entrainment

The principal difference between the Staff and Con Edison in regard to the potential adverse impact of Indian Point 2 on marine aquatic organisms is the Staff's estimate of the entrainment of nonscreenable fish eggs, larvae and fingerlings. Con Edison's position is set forth in Appendix E.

In summary, Con Edison agrees that we should seek to quantify the effect of this entrainment, but disagrees with the Staff in the following respects:

A. The crux of the Staff's analysis is its calculation that approximately 25% of the planktonic forms of various fishes using the estuary will be entrained by the plant. The Staff has computed this number by the use of erroneous equations. The Commission's analysis of estuary dilution flow is based on a report of B. H. Ketchum, and the bulk of the literature in the field establishes that this analysis cannot properly be used for this purpose.

B. The Commission understates the significance of the diurnal movement of larvae. The Statement does recognize that this phenomenon exists but states that the effect it maintains is slight. It does so on the basis of an hypothesis which if true suggests a net upstream movement of planktonic larvae which would produce negligible entrainment. Con Edison believes that the diurnal effect may reduce entrainment to one-third to one-half of the Commission's prediction based on the

proportion of daylight hours to darkness during the planktonic stage. In conjunction with proper estimates of estuary dilution flows, the entrainment would be further reduced to one-fifth to one-eighth of the Staff's prediction.

C. The Staff also bases its analysis on the conclusion that 75% to 90% of the young juveniles which reach Haverstraw Bay below Indian Point pass Indian Point in an entrainable stage and are uniformly subject to entrainment. Eggs only exist for approximately two days so that only eggs spawned in close proximity to the plant could be susceptible to entrainment. Furthermore, larvae are fully planktonic for only a few days. Juveniles are known to move toward shallows and shoal areas as well as deep waters unlike the area near the Indian Point intake and thus do not randomly reach Indian Point based on total mixing. These same juveniles also have a capability to avoid entrainment.

D. Con Edison shares the view that based upon current data and analytical techniques the impact of entrainment and impingement on the total fish population cannot be satisfactorily quantified. We share the view that a determined attempt to obtain some quantification should be made in the early years of plant operation. In our opinion it will take five years rather than two years to accomplish such a unique task. In the meantime it is the considered opinion of Con Edison that the operation of the plant during the study period will not cause irreversible or irretrievable damage to the fishery. It is to be noted that the intervenor which is raising the question of damage to the fishery is the same one which has been making similar claims for the past eight years concerning the operation of Indian Point 1. And yet the principals of that organization have in the recent past published articles claiming that bass fishing is excellent and improving. Glowka, "17,000,000 Stripers", The Salt Water Fisherman, August 1971.

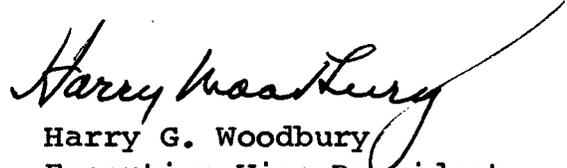
6. Radiological Impacts

Con Edison believes that the Staff, in computing the possible radiological impact of Indian Point 2, failed to take into account certain systems presently installed or to be installed shortly which it can properly consider. These are

described in Appendix F.

Con Edison hopes that these comments and the enclosed appendices will be of use to the Commission in preparing the Final Detailed Statement.

Very truly yours,


Harry G. Woodbury
Executive Vice President

Encs.