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July 5, 1972

Mr. Daniel R. Muller, Assistant Director
for Environmental Projects
Directorate of Licensing
U. S. Atomic Energy Commission
Washington, D. C. 20545

Dear Mr. Muller: Re: Docket No. 50-247

Consolidated Edison Company of New York, Inc. respectfully submits the enclosed responses to the Comments submitted by the following on the Draft Detailed Statement, concerning environmental impacts of Indian Point Unit No. 2, prepared by the Atomic Energy Commission's Regulatory Staff:

1) Environmental Protection Agency
2) New York State Department of Environmental Conservation
3) Attorney General of New York State
4) Congressman Bingham
5) Mr. John M. Burns
6) Committee to End Radiological Hazards
7) Department of the Army
8) Congressman Ryan
9) Congressman Dow
10) New York Historic Trust

We hope these comments may be of use to you.

Very truly yours,

Harry G. Woodbury

Harry G. Woodbury
Executive Vice President

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Response of Con Edison to Comments of Environmental Protection Agency on Draft Detailed Statement - Re Indian Point Unit No. 2

(1) Cover Letter Page 1 and Conclusion No. 1 - The last sentence of the third paragraph states that, "Where the discharger can demonstrate that there is no substantial evidence of damage from once-through cooling, the plant should receive a permit to operate, but with a commitment to perform environmental monitoring and to go to offstream cooling if this monitoring produces evidence of substantial damage". Con Edison is in agreement with this concept (assuming that "substantial damage" is determined by weighing costs, including environmental damages, and benefits) and believes that it is applicable to Indian Point Unit No. 2. There is no substantial evidence of damage from once-through cooling, but, there are enough indications of potential problems, as described in the AEC's Draft Statement, to warrant environmental monitoring. If environmental damage should occur during this monitoring period, Con Edison has been adivsed by its consultants that such damage could not have an irreversible impact on the Hudson River ecology.

The last sentence of the second paragraph of the cover letter and the first conclusion on Page 1 appear to recommend the installation of a closed cycle cooling system based on the present record. Con Edison disagrees with this conclusion because it is not substantiated by any scientific data. To build a closed cycle cooling system merely on the basis of speculative threats to the environment before the environmental impacts have been scientifically assessed fails to perform the

type of cost/benefit analysis required by the National Environmental Policy Act. The best way that appropriate data can be obtained is to permit the operation of Indian Point Unit No. 2, study its impacts carefully, and then determine whether an alternate cooling system is desirable based on a balancing of all relevant factors. Any environmental damage which might occur during this period would not be irreversible.

(2) Page 1 Conclusion No. 2 - Operation of the plant should not be restricted unless the monitoring program produces evidence of substantial damage. To restrict output in advance of such a determination imposes operational difficulties and economic penalties without any known compensating benefit. As noted above any damage during this brief period could be redressed by subsequent action.

(3) Page 2, Bottom Paragraph, and Page 3, Top Paragraph

In Con Edison's comments to the AEC, the demineralizers in the Secondary Boiler Blowdown Purification System are described. The cation resin in the mixed bed demineralizer will reduce the Cs-137, Cs-134 and Mo-99 concentrations in the blowdown by at least a factor of ten.

The dissolved solids in the blowdown will, in fact, not reduce the radiological DF associated with the demineralizer.

The demineralizers will not be regenerated and the resin will maintain the expected DF for a long enough period of time such that no excessive solid waste will be generated to produce an impact on shipping of drums.

(4) Page 3, 2nd Paragraph

Alternate Blowdown Treatment Systems

With the addition of the blowdown intertie to the Indian Point Unit No. 1 Secondary Boiler Blowdown Purification System and the other modifications to Indian Point Unit No. 2, all described in Con Edison's comments to the AEC on the AEC's Draft Environmental Statement on Indian Point Unit No. 2, it is believed that Indian Point Unit No. 2 will comply with the 5 Curie limit contained in Part A of proposed Appendix I to 10CFR50 and will most certainly comply with the .5 mRem/yr exposure limit to an off-site individual specified in Part C of the proposed Appendix.

Appendix D to 10CFR50 requires that alternatives in a cost/benefit analysis only be considered where proposed Appendix I to 10CFR50 is not satisfied.

(5) Page 3. Bottom Paragraph

Blowdown Flash Tank Vent

In a letter dated May 30, 1972, Con Edison transmitted to the AEC, comments on the AEC's Draft Environmental Statement. Included in these comments is a description of the blowdown intertie to the Indian Point Unit No. 1 Secondary Boiler Blowdown Purification System. It is noted that routine operation of the plant will be to route all radioactive blowdown to this purification system and consequently, to route flashed steam to the Indian Point Unit No. 1 main condenser. This mode of operation should essentially eliminate this source of activity.

It is also noted in Con Edison's comments to the AEC that their value of 0.62 Ci/yr is too high since they assumed that 1/2, rather than the realistic 1/3, of the liquid in the blowdown flash tank would flash to steam.

(6) Page 4, Top Paragraph and Pabe 17, Bottom Paragraph

Compliance with 10CFR50 Proposed Appendix I

In Con Edison's comments to the AEC concerning the AEC's Draft Environmental Statement on Indian Point Unit No. 2, it was pointed out that 1/3, not 1/2, of the liquid in the blowdown flash tank flashes to steam. This correction would reduce the AEC's calculated 0.62 Ci/yr estimated release through the blowdown flash tank vent to about 0.4 Ci/yr or less.

The inhalation dose at the site boundary due to this release is 3.5 mRem/yr. This is clearly below the 5 millirem maximum annual exposure to the thyroid of an off-site individual specified in Part C of proposed Appendix I to 10CFR50.

The dose to a milk drinking child obtaining all its supply of milk from a cow at the closest dairy to the Indian Point Site would be about 0.4 mRem/yr. This is a thyroid dose due to radioactive iodine transmitted along the pasture-cow-milk-child path. This too, is well within the proposed limits.

In summary this release is not expected to occur since routine operation of the plant will be to route these gases to the Indian Point Unit No. 1 main condenser air ejector as described in Comment (5) above. However, were it to actually occur,

compliance with proposed Appendix I to 10CFR50 would still exist.

(7) Page 4, 2nd Paragraph

Con Edison has made a survey of other operating PWR's and has found that none have experienced appreciable radioactive leakage from the secondary system. It has not been found necessary to measure secondary system leakage at these plants since activity in the secondary system has been so low.

Concentrations of radioisotopes other than iodine will be insignificant on the secondary side since they will not carry over from the steam generator. Iodine concentrations would be less than 1/10 of the iodine activity in the steam generator. If releases of iodine from the secondary system approach applicable limits, it will be necessary to shut down the unit and terminate steam generator leakage by plugging the tube or tubes responsible.

(8) Page 4, Bottom Paragraph

Gas Decay Tanks

It is untrue that there are four gas decay tanks that serve both Indian Point Unit Nos. 1 and 2. There are four gas decay tanks associated with Indian Point Unit No. 1 for its sole use. Indian Point Unit No. 2 has four large gas decay tanks which will handle most of the gaseous waste and six small gas decay tanks which are reserved for use during degassing of the reactor coolant and purging of the volume control tank.

The Indian Point Unit No. 2 gas decay tanks are designed for 45-day hold-up and it is planned to utilize this full capacity, even though the Technical Specifications require a minimum of 20-day hold-up.

(9) Page 6, 1st and 2nd Paragraphs; and Page 18 Top Paragraph

Dose Due to Ingestion of Fish

The AEC's estimate of 0.02 mRem/yr due to ingestion of fish which were swimming in water affected by radioactive releases from Indian Point Unit No. 2 is an extremely conservative one. It appears that all expected releases specified in Section III were in fact, used to calculated this dose. These release estimates are too high since they do not reflect the use of all the waste treatment equipment which will be in use at the site and so the calculated dose based on the releases is consequently too high. This dose estimate should also be considered too high since no credit was given for dilution of the radionuclides in the Hudson River.

The effects of the reduced condenser cooling flow on such a low dose, as calculated based on the assumptions discussed above, would be to increase it to a level which would still be insignificant.

(10) Page 6, Bottom Paragraph

Direct Dose from Water Storage Tank

There is little to no activity in any of the water storage tanks on site with the possible exception of the Refueling

Water Storage Tank. This tank holds about 350,000 gallons of water which is transferred to the reactor cavity through the core at each refueling outage. Before being returned to the storage tank, the water can be purified in the vicinity of the tank to very small levels.

The Visitors' Information Center will be located about 350 feet from this tank and the closest resident is about 2000 feet from the tank. The nearest resident is located beyond a large hill and so would receive a negligible dose due to skyshine alone. At the Visitors' Information Center, the maximum dose rate immediately after the refueling outage would be about 0.02 mRem/hr, which is insignificant. If doses were expected to be significant from this source, the clean-up system would be utilized to purify the water. After each five-day period of operating the clean-up system, the activity in the water in this tank (and consequently, the dose rate outside of it), would be reduced by a factor of 10.

(11) Page 9

Site Meteorology

It is true that the meteorological model used by the AEC to estimate doses from radioactive gaseous discharges is based primarily on the 1955 - 1957 data collected by NYU at the Indian Point Site. More recently, however, additional data has been collected by the NYU meteorological group in an effort to verify the older data. Appendix G to the Indian

Point Unit No. 2 Environmental Report Supplement shows the results of the first 10 months of collecting data. This study entitled "Wind Observations at Indian Point, 26 November 1969 through 1 October 1970", shows that meteorological conditions have not significantly changed since the earlier data was taken. Data taken since 1 October 1970, has not yet been reported, but has continued to verify all existing data.

Changes that have been found are small, but indicate that the model used is more conservative than one which would be derived based on the more recent data.

(12) Page 10, 1st Paragraph

The AEC's Draft Statement discussed maximum potential environmental impacts. EPA describes these impacts as "probable". There is no justification for converting "potential" to "probable".

(13) Page 10, 2nd Paragraph

The implication in this paragraph that thermal discharges have killed fish is erroneous. There is aboslutely no evidence to support such a conclusion. The extensive studies conducted by Con Edison and reported to the AEC establish that heat loads in the river will not be excessive, will conform to state criteria and standards, and will not adversely influence the migration of anadromous fish.

(14) Page 11, First Paragraph

"We believe, however, that based on currently available information, if the Indian Point plant is to operate within applicable New York State standards and in a manner adequate to protect aquatic biota, a closed-cycle cooling system will be necessary" (EPA quote).

The design of the Indian Point discharge including the submerged ports, which result in a 10-foot per second discharge velocity, will permit operation of the system within the New York State standards.

(15) Page 11, 2nd Paragraph

". . . we cannot support operation of this plant unless it can be demonstrated that such operation will not result in a violation of New York State water quality standards or lead to a significant adverse impact on aquatic biota" (EPA quote).

The State of New York Department of Environmental Conservation in their comments on this AEC draft, indicate that Con Edison will not violate New York State water quality standards. There is no evidence of a significant adverse impact on aquatic biota to date, and a monitoring program is needed to establish the degree of impact. Con Edison has not only agreed, but indeed proposed studies and monitoring systems to determine the practicality and need for a closed-cycle cooling system. We believe we have demonstrated that operation of the plant while the study is in progress will result in no irreversible or irretrievable damage to the ecosystem. The preponderance of evidence clearly supports this contention.

EPA

(16) Page 12

The EPA is suggesting a temperature increase limitation of 1.5°F for the period of July to September. This is a more stringent temperature requirement than the existing New York State thermal criteria (i.e., surface temperature of river not to exceed 90°F at any point, nor can the 4°F isotherm extend more than 2/3 the width of the river across the surface). There is no evidence to support the need to deviate from the current New York State thermal water quality criteria with respect to the 4°F isotherm. Rather there is clear evidence that the thermal discharges from the plant will in no wise adversely affect the aquatic biosphere. The increase in T will have no measurable impact. A passageway beyond the 4°F isotherm of 50% of the cross-section and 1/3 of the surface is expected to be met. Maximum temperatures are expected to be below 90°F. The plant is not expected to be able to operate at acceptable power levels and meet the 1.5°F Δ T criteria suggested by EPA.

Furthermore, EPA's attempt to establish new water quality standards through comments on a draft environmental statement subverts the Federal Water Quality Act. That law prescribes procedures for establishing standards. EPA's comments should be based on standards approved under those procedures, not on new proposed standards which have not yet been adopted. A company wishing to comply with all applicable laws and regulations would have an impossible burden if it also had to consider proposals, which may or may not be adopted.

EPA

(17) Page 13, 2nd Paragraph

- " . . . the AEC should consider requiring the applicant to modify the intake structure and/or install midstream protective screens" (the above is EPA quote).

The statement concerning installation of midstream protective screens is not clear, but it is assumed that the EPA is referring to our proposed common intake structure. This should be clarified by the AEC, as the EPA apparently is insisting that we be required to build it as a fish protection measure and at the same time, suggesting the need for a closed cycle cooling system. Furthermore, the plant is expected to operate at 60% of full flow during the winter months and operate with air curtains in front of all screens during this period. These modifications in original design and operating configurations are expected to effect a substantial reduction of fish impingement at Indian Point Unit No. 2.

(18) Page 14

"In the past, EPA has recommended that levels of chlorine in the receiving water should not exceed 0.1 mg/l for more than thirty minutes per day or 0.05 mg/l for more than two hours per day".

Chlorination techniques at Indian Point and the effect of residual chlorine discharges on the ecosystem have been described to the AEC in detail in Appendix D of Con Edison's comments on the "Draft Detailed Statement", as well as other testimony submitted to the ASLB.

EPA

Basically, in response to EPA's comment on the "Draft Detailed Statement", the expected discharge concentration (at the confluence) of residual chlorine is 0.1 ppm or less. Consequently, the EPA recommended levels of chlorine in the receiving waters will not be exceeded since the expected discharge (at the confluence) will be greatly reduced by dilution and the chlorine demand of the receiving water.

Current tests (still in progress) by Dr. Lawler of Quirk, Lawler & Matusky (consultants to Con Edison) have verified this effect. Also, the synergistic effect of the chemicals discharged from Indian Point has been considered in Dr. Lauer's testimony (submitted at ASLB Hearing, April 5, 1972).

(19) Page 16, Last Paragraph

Future developments should not be considered as part of the environmental review of Indian Point Unit No. 2. This point has been addressed at length in Con Edison's response to the comments of the Hudson River Fishermen's Association, and reference is made to that document for purposes of this response to EPA.

(20) Page 17, 2nd Paragraph

It is true that evaporators such as the one to have been used at Indian Point Unit No. 2 have experienced decontamination factors (DF) of less than 10^4. Because of this poor experience at other plants, the Indian Point Unit No. 2 evaporator has been modified in the same manner as the evaporator in use at

the Ginna Station. In addition to making these "Ginna modifications" to the waste evaporatr, a 2 1/2 cu. ft. mixed-bed demineralizer has been installed as a polisher. Experience at other plants where these modifications and additions have been utilized has indicated that 10^4 is a conservatively low estimate of the overall (input/output) DF for all radioisotopes (including iodine) except tritium and noble gases.

(21) Page 18, 2nd Paragraph

Con Edison is not aware of any problem concerning the production of ozone by our high voltage transmission lines. Although the hypothesis has been suggested that ozone production could be a problem at ultra-high voltage transmission lines there has been no suggestion to our knowledge that this problem could arise at 345 kv.

(22) Page 18, 3rd Paragraph

The Raytheon Report on pH changes contains erroneous data which resulted from non-representative sampling. Dr. Lauer's testimony before the ASLB contains information on this subject.

(23) Page 18, 4th Paragraph

Reference should not be made to Indian Point Unit No 3. The AEC Draft Detailed Statement (P III-57) stated the following about sanitary wastes including the adequacy of the septic tanks: "The existing facility appears to be adequate to process wastes from Indian Point Unit No. 2 on the basis of capacity, design parameters, and site percolation tests". This corroborates the Applicant's description as presented in Table 2.3-4 of Supplement No. 1 to the Environmental Report.

(24) Page 19, Last Paragraph

Dr. Lauer's testimony before the ASLB contains reference to the effects of soda ash and potassium chromate.

(25) Page 19, 2nd Paragraph

The AEC Draft Statement calls for the fish impinged on the screens to be returned promptly to the river. We agree with this conclusion as being environmentally superior to any alternate.

Response of Con Edison to Comments of New York State Department of Environmental Conservation on Draft Detailed Statement

(1) Page 1, Comment 1

The AEC should not consider power plants coming into operation in the future in assessing the environmental impact of Indian Point Unit No. 2. This is discussed at length in Con Edison's response to the comments of the Hudson River Fisherman's Association, and reference is made to that document.

(2) Page 2, Comment 2

" . . . the project does detract from the view of the shorelines and upland area as seen from the river".

Con Edison has made a considerable effort to improve the acquired site, which was an abandoned amusement park. The Applicant's Environmental Report describes the areas of beautification to be undertaken (i.e., nature trails, tree planting, etc.).

(3) Page 5, Comment 10

The flow control gates of the outfall structure are complete. We have scheduled an inspection with the Department of Environmental Conservation on June 29, 1972, to verify this.

(4) Page 16, Comment 32,

If the AEC's analysis were modified to conservatively account for:

1. recycling of CVCS water on Indian Point Unit No. 2,
2. modification of the Indian Point Unit No. 2 waste evaporator,

3. treatment of Indian Point Units 1 and 2 blowdown in the Indian Point Unit No. 1 Secondary Boiler Blowdown Purification System,
4. proper functioning of the Indian Point Unit No. 1 waste evaporator system,

the total estimated liquid releases would be between seven and eight curies/yr. Proposed Appendix I to 10CFR50 would limit releases to 5 ci/yr per reactor. Therefore, 10 curies/yr would be allowable for Indian Point Units 1 and 2 together. Based on a dose of 5 mr/yr in proposed Appendix I, considerably larger releases would be allowed.

A description of the modifications to be made to the Indian Point Unit No. 2 waste system was included in Appendix F to Con Edison's letter of May 30, 1972. As stated in Appendix F, these modifications will be completed by the first refueling. Conservative estimates of system performance were also included.

With regard to blowdown activity, it should be noted that none of the currently-operating Westinghouse PWR's have experienced combinations of leaking fuel and leaking steam generators nearly as severe as those assumed in the AEC analysis. Therefore, it is unlikely that releases from Indian Point Unit No. 2 blowdown will be as large as estimated by the AEC. After about one year of operation, the blowdown purification system will be in service.

(5) Page 18, Comment 34

The Indian Point Unit No. 2 blowdown tank vent does not pass through the plant vent charcoal filters. As pointed out in Con Edison's May 30, 1972 letter, the AEC calculation of .62 ci/yr is conservative because it assumes 50% flashing in the blowdown tank and fails to account for steam condensation due to cold water spray in the blowdown flash tank. When the intertie to the Indian Point Unit No. 1 blowdown purification system is completed, steam will be routed to the Indian Point Unit No. 1 condenser. Then, this source of iodine release will be essentially eliminated whenever the Indian Point Unit No. 1 condenser is operating.
In any case, should iodine releases from the secondary plant approach applicable limits, it will be necessary to shutdown the plant and plug any leaking steam generator tubes.

(6) Page 20, Comment 38

"The expected losses (fish) should be further quantified by reference to past and current operating experience."

It is difficult to quantify the expected collection of fish for Indian Point Unit No. 2 because of the great variability that has been found at Indian Point Unit No. 1.

Although it is possible to make reasonable estimates of fish collections in the recent past, engineering and operating procedure modifications must be taken into account in estimating future collections. Both Indian Point Unit Nos. 1 and 2 will operate at reduced flow in winter periods and air curtains are being installed in front of all fixed screens of Indian Point Unit Nos. 1 and 2 and will likewise operate during winter months and at such other times as their operation effectively reduces the rate of fish impingement.

(7) Page 20, Comment 39

It is current practice to chlorinate half of the condenser at any one time. It should be noted that a program is underway to limit chlorination whenever possible, i.e., during colder months.

(8) Page 23, Comment 48

When condenser cooling water flow is reduced, the temperature rise increases but the volume of water affected is reduced. The net effect on the extent of the 4°F isotherm will be a small reduction in the area bounded by the 4°F isotherm over what it would be at full flow. Accordingly, state criteria would be met by a greater margin than at full flow.

(9) Page 23, Comment 49

This comment implies that the AEC should determine policies on rationing of electricity. We do not believe that the AEC is the appropriate governmental body to perform this function.

The applicable law requires a utility to furnish all electricity requested by persons within its service territory. Any change in that law must be made by appropriate legislative bodies.

(10) Page 25, Comment 53

Con Edison disagrees with the state's reference to "the desired reserve margin of 20% . While this number may be a general reference for an average utility system, it cannot be applied to a specific system without analyzing that system. Con Edison believes that a 20% reserve is inadequate for its system, and this belief has been proven correct by events of the recent past.

(11) Page 27, Table X-3 -

Indicates the planned reserve margins for the Northeast Power Coordinating Council and the New York Power Pool for the Summary of 1972 and Winter of 1972-73.

This table fails to consider that actual reserves will be substantially lower than planned. For example, while planned reserves for the New York Power Pool in the Winter of 1972 without Indian Point Unit No. 2 are 6368 MW, approximately 1600 MW will be required for Operating Reserves, and if the outage experience of Winter 1971-72 were repeated, an additional 3567 MW would be unavailable due to outages and other deratings. Additionally, scheduled maintenance now planned for the Winter of 1972-73 will exceed, by a substantial margin, that which

has been shown in Table X-3. Consequently, because the Table considers only the planned level of reserve rather than the requirements for that reserve, it does not correctly reflect the need for additional capacity resources within the New York Power Pool, such as would be provided by Indian Point Unit No. 2.

(12) Page 30, Comment 60

As Con Edison noted in its Response to the Comments of the Hudson River Fishermen's Association, the Attorney General of the State of New York has brought a suit against Con Edison alleging violations of Section 275 of the Conservation Law. Con Edison has denied these allegations. The AEC should not attempt to judge a question of New York law which is now pending before the courts of New York.

Response of Con Edison to Comments of the Attorney General of the State of New York on Draft Detailed Statement - Re Indian Point Unit No. 2

(1) General - The comments of the Attorney General of the State of New York generally resemble the comments of the HRFA. Con Edison's response to those comments should be deemed a response to the similar comments of the Attorney General.

(2) Page 2, Paragraph 1 - The Attorney General refers to Con Edison acting "as its own policeman". The research program being financed by Con Edison will obtain data. All government agencies and other persons will be able to draw their own conclusions from the data. Applicable laws and regulations will, we must assume, be enforced by appropriate Federal and State agencies. Accordingly, by no stretch of the imagination would Con Edison act as its own policeman.

As stated in Con Edison's response to the HRFA comments, Con Edison has tried to do everything it can to eliminate bias from the research program in the absence of another party willing to undertake this program. We would welcome any constructive suggestions the Attorney General may have to offer in this regard.

(3) Page 6, Item 3 - The Attorney General's comments state that "the 1972 reserve margin of the New York Power Pool without Indian Point No. 2 will be 19.6%, almost double that of a year ago", and consequently concludes that the planned increase in reserves even without Indian Point No. 2 will preclude the

need for power from that unit in the near future. While it is correct that the planned reserve margin (that reserve which will be available for the Summer of 1972 if no other planned capacity additions are delayed and if there is no unavailable capacity due to forced outages or other deratings) will be 19.6% even without Indian Point No. 2, it is not correct that this will be double the reserve which was planned last year. In fact, in March 1971, the New York Power Pool's planned reserve margin for the Summer of 1971 was 24.2%.

More importantly, what is ignored by the Attorney General's Office is that actual reserve levels have recently been considerably lower than planned. In the Summer of 1971, for example, actual reserves, after slippage of new units and equipment outages, were only 3.5%. If there were not units delayed, other than Indian Point No. 2, and the average level of equipment outages occur in the Summer of 1972 as occurred in the Summer of 1971, the actual reserve margin for the Summer of 1972 would only be 2.0%. Delay of any other new units planned for service in the Summer of 1972 would further reduce the level of reserve.

Response of Con Edison
to Comments of Congressman Jonathan B. Bingham
on Draft Detailed Statement
re Indian Point Unit No. 2

Congressman Bingham refers to the suit brought against Con Edison by the Attorney General of the State of New York and to the question of whether the Bowline Point and Roseton Plants should be considered in the AEC's Environmental Statement. These points were addressed at length in Con Edison's Response to Comments of the Hudson River Fishermen's Association, and reference is made to that Response.

Congressman Bingham has unfortunately been misled by the AEC's Draft Statement and apparently believes that the plant will reduce the adult population of fishes in the river at the rate of 20% per year. This apparently is based on the AEC Staff's estimate of entrainment mortality without quantification of the impact on adult population of fishes in the Hudson River. The AEC should clarify this point.

Response of Con Edison
to Comments of John M. Burns III
on Draft Detailed Statement
re Indian Point Unit No. 2

(1) Page 2, Item (4) - Mr. Burns states that appropriate cooling facilities can be installed without violating reasonable esthetic standards and without undue expense. If a closed cycle cooling system must be installed at Indian Point, natural draft (hyperbolic) cooling towers appear to be the most environmentally desirable scheme. One such tower for a facility the size of Indian Point Unit No. 2 would be a structure 500 feet high and 515 feet wide at the base. This would be the single most massive structure in this section of the Hudson River Valley and would intrude greatly on the scenic quality of the river valley. Also, this tower will continuously emit a vapor plume that would have a further impact on the scenic qualities of the Hudson River Valley.

Our estimate of the cost of integrating a natural draft cooling tower for Indian Point Unit No. 2 is $96 million. (Reference: Con Edison Environmental Report, Indian Point Unit No. 2, Supplement No. 3, Benefit-Cost Analysis, Page S3-A17, Table A-2.)

(2) Page 2, Paragraph No. (1) - Mr. Burns states that since Consolidated Edison now has a 35% reserve capacity over anticipated winter peak load, there is no urgent need to operate this facility. This type of oversimplification of system planning analysis is grossly in error. In determining the capacity necessary for the winter of 1972-73, all requirements of the system must be considered, including needs for maintenance, operating reserve, and estimated losses of capacity. Because of recent power shortage problems, maintenance remains a critical item. It is necessary to do a great deal of maintenance during the winter if the system is to continue to function in a reliable fashion. Furthermore, a large portion of the Con Edison system consists of old unreliable units and we must anticipate, based on past experience, a greater proportion of losses of capacity than is present in more modern systems. This situation will continue until Con Edison is able to bring into operation the modern plants now under construction such as Indian Point Unit No. 2.

(3) Pages 2-3 - Mr. Burns states that the proposed thermal discharges pose a serious threat to the quality of the

Hudson and to its water life. He appears to be under the impression that the Hudson River will be heated approximately 15°F. This temperature rise will exist within the plant but temperature rises in the river will be much smaller, particularly in view of the use of a high discharge velocity through submerged ports.

There is no evidence to support the statements that the thermal discharge will cause significant adverse impacts. The comments of the New York State Department of Environmental Conservation generally confirm this fact. Furthermore, actual measurements at the plant establish that plant operations will have a very insignificant impact on dissolved oxygen. The statement that the effect of the thermal discharges "may be to wipe out entire species of fish" is unsupported by any scientific data and is contrary to the testimony of all experts who have observed the situation at Indian Point.

The reference to 150,000 fish killed on one day last February is erroneous. One hundred and fifty thousand is the total fish collected during a test program extending over ten days in January and February of 1972. Furthermore,

the plant will not operate under the conditions of the test program.

Mr. Burns has apparently been misled by the AEC Draft Statement when he says that operation of the plant "may destroy 25% of the fish in the Hudson per year." The AEC Staff's Draft Statement failed adequately to relate the potential mortality of juvenile fish to adult populations. The Final Detailed Statement should clarify this point.

(4) Page 3, Paragraph No. (3) - The AEC's Detailed Statement should not refer to plants coming into operation in the future. This subject was discussed at length in Con Edison's Response to Comments of the Hudson River Fishermen's Association, and reference is made to that document.

(5) Page 4, Paragraph No. (4) - The fact that the Scenic Hudson Preservation Conference does not object on esthetic grounds to cooling towers should not be considered as dispositive of that question. This organization has as its primary function the opposition to a pumped storage plant Con Edison has proposed for construction at Cornwall, N.Y. This organization has no specific

expertise on esthetic matters, particularly as concerns the area of the river near Indian Point.

Response of Con Edison to Comments of the Committee to End Radiological Hazards on Draft Detailed Statement - Re Indian Point Unit No. 2

F. Committee to End Radiological Hazards Letter dated May 19, 1972

The chart of "Deaths from Brain and Breast Cancers and Leukemia" prepared by Mrs. Weik presents total deaths attributed to selected neoplasms for the two four-year intervals immediately proceeding and following startup of Indian Point.

It should be noted that in no case has the date of diagnosis been mentioned so as to determine whether or not cancer had been detected in any of the population before startup of Indian Point even though their deaths may have occurred post 1962.

Since very small numbers are involved, any fluctuation from from the mean values tend to magnify the apparent increasing number of deaths. It would be more meaningful to review the number of deaths on a year-by-year basis, as they had been presented by the New York State Department of Health.

The Department of Health, in the report from which this data was extracted, noted that "...with the relatively small number of deaths involved, it is almost impossible to attempt any rational interpretation..." The conclusions of the Department of Health Study were as follows:

> "Based upon this study, there is, at the present time, no evidence to implicate radioactive airborne fallout as a factor in changing the mortality rate

for all causes of death or as a factor causing an increase in the cancer death rate. With the known period between exposure to radioactivity and its lethal effects, it would be extremely unlikely that any measurable inpact could have been readily detected in so short a period of time".

In another NYS Department of Health report "Selected Health Statistics 1960-1969 for Counties in New York State Having Nuclear Facilities" dated June 30, 1971, reported cancer deaths have been listed for counties with and without nuclear facilities. To consider, for example, the incidence of leukemia as a function of time, it can be seen that the total number of deaths per year is lower for counties with nuclear facilities. What is important, however, is that the rate of deaths per 100,000 population fluctuates with time for both counties with and without nuclear facilities.

With regard to internal damage by "contact radiation", it should be noted that most gaseous releases at Indian Point are primarily in the form of the inert gases krypton and xenon which are neither reconcentrated by any mechanism in the environment nor coagulated to any hot particles. These releases, therefore, would not cause any "hot spots" responsible for "contact radiation".

The relationship between the "radiation limits", specified in Mrs. Weik's third comment, and the large thyroid doses is non-existent. Releases from the Indian Point Units are

limited such that the resulting concentrations at the site boundary are below those listed in 10CFR20.

10CFR20 concentrations are based on limiting the dose to any individual to 500 mr/yr. It should be noted that the actual gaseous releases from Indian Point Unit No. 1 have been less than a small fraction of those permitted by 10CFR20.

Response of Con Edison
to Comments of the Department of the Army
on Draft Detailed Statement
re Indian Point Unit No. 2

The letter from the Department of the Army indicates that some clarification is necessary with respect to cooling water flows. The maximum flow of Indian Point Unit No. 2 alone consists of 840,000 gpm cooling water flow and 30,000 gpm service water flow. The maximum combined flow of Indian Point Units Nos. 1 and 2 is 1,200,000 gpm.

Response of Con Edison
to Comments of Congressman William F. Ryan
on Draft Detailed Statement
re Indian Point Unit No. 2

Con Edison agrees with Congressman Ryan's request on the desirability for further study of ecological impacts. Con Edison has no objection to the study being done by the Atomic Energy Commission or any other responsible government agency. Reference is made to Con Edison's Response to the Comments of the Hudson River Fishermen's Association in this regard.

We further agree that guidelines are helpful, and we are now using state standards and criteria and scientific data. To a certain extent it will be necessary to analyze the results of our studies in order to establish guidelines.

We also agree that natural draft cooling towers should not be dismissed without a more complete study as to their long-range benefit-cost relationships as compared to the present plans. We are undertaking such a study. The environmental costs of present operations cannot be fully assessed until we have completed post-operational studies.

We believe that the AEC should license Indian Point Unit

No. 2 on the basis that operations pending completion of the studies referred to by Congressman Ryan will not produce any impact which is irreversible or which cannot be redressed.

Response of Con Edison
to Comments of Congressman John G. Dow
on Draft Detailed Statement
re Indian Point Unit No. 2

Congressman Dow, as others, has apparently been misled by the AEC Draft Statement when he says the annual loss of striped bass may be as high as 15% to 20%. The AEC Staff's Draft Statement failed to relate the potential mortality of juvenile fish to adult populations. The Final Detailed Statement should clarify this point.

Con Edison agrees with Congressman Dow that the Detailed Statement must take into account the entire environment on which the proposed plant will have an effect. We disagree with the concept that the future environment must be predicted and analyzed. This subject was discussed at length in Con Edison's Response to Comments of the Hudson River Fishermen's Association, and reference is made to that document.

Con Edison shares Congressman Dow's concern for the visual impact of cooling towers. It should be made clear, however, that natural draft cooling towers for Indian Point cannot be built with a low silhouette, and induced draft towers with a low silhouette have other environmental disadvantages, including noise, fogging and drift effects.

Response of Con Edison
to Comments of New York State Historic Trust
on Draft Detailed Statement
re Indian Point Unit No. 2

Con Edison shares the view expressed by the New York State Historic Trust that the visual impact of the plant should be a consideration. As construction is completed, the construction areas will be landscaped and the visual impact will be considerably improved over its present condition.

We have reported the visual impact of cooling towers as an adverse effect on environmental quality. Each impact -- environmental, economic, social, etc. -- must of course be evaluated in its relationship with other values.

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