New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233

Peter A. A. Berle,
Commissioner

October 12, 1977

Mr. George Knighton, Chief
Environmental Projects Branch #1
Division of Site Safety and
Environmental Analysis
Nuclear Regulatory Commission
Washington, D. C. 20555

50-286

Dear Mr. Knighton:

Enclosed are the State of New York's comments on the U. S. Nuclear Regulatory Commission (NRC) "Draft Environmental Statement for Selection of the Preferred Closed Cycle Cooling System at Indian Point No. 3", published August, 1977. We have incorporated the relevant views of interested State Agencies in these comments.

The NRC staff's conclusion that natural draft cooling towers would be the most environmentally compatibile alternative is the appropriate conclusion from most areas of environmental conservation. However, the significant exception was in the area of aesthetics, where the circular mechanical draft cooling towers are clearly preferable.

In evaluation of environmental compatibility of cooling towers, we must analyze the combined impact of all the proposed cooling towers on the environment of the Hudson River watershed and the Hudson Valley airshed, since cooling towers will transfer a significant quantity of water and dissolved solids from the river to the atmosphere. Although individual towers may not be detrimental to the environment, the combined effect could be significant and therefore should also be addressed in this impact statement.

We hope that our comments will be of assistance to your staff in the preparation of the final environmental statement. We appreciate the opportunity to comment on this DES and request that you give our comments your utmost consideration.

Sincerely yours,

Langdon Marsh

Langdon Marsh
Acting First Deputy Commissioner

Enclosure

STATE OF NEW YORK COMMENTS ON THE U.S. NUCLEAR REGULATORY COMMISSION'S DRAFT ENVIRONMENTAL STATEMENT FOR SELECTION OF THE PREFERRED CLOSED CYCLE COOLING SYSTEM AT

INDIAN POINT UNIT #3
(Docket #50-286)
(Published August, 1977)

September 29, 1977

General Comments

1. The IP-3 cooling tower was correctly assessed for a plant generating capacity of 1033 MWe (neglecting derating). However, the FES for the IP-2 cooling tower (published August, 1976, Docket #50-247) assumed an IP-2 generating capacity of 873 MWe. Our cover letter introducing New York State's comments for the IP-2 DES pointed out that Con Edison plans to use the total IP-2 generating capacity of 1033 MWe by May, 1980 (two years after scheduled cooling tower installation). The analysis should have been based on closed cycle cooling systems capable of dissipating this greater heat output. This was not corrected in the FES, so it is assumed that the same IP-2 parameters were incorrectly used for this DES (see comment 9 of p. 7 of the present reviews).

2. The FES for IP-2 cooling towers (in response to our comment #19) discounted aquaculture as a beneficial use of waste heat because of nearby shipping channels. However, Lents Cove is only about 400 m to the northeast of the proposed cooling tower location. Since this bay is removed from the shipping channel and its dimensions are about 500 m by 300 m, it would appear to be a feasible location for a controlled impoundment section to be used in addition to cooling towers. This should be considered for IP-3 as well as IP-2.

Chapter 2 Description of Alternate Closed Cycle Cooling System

1. P. 2-3 (section 2.3): Mention is made (third paragraph from the bottom) of the use of chemicals in the water circulated through the cooling towers to prevent freezing which would also be discharged in the blowdown. We are not aware of the use of such additions in evaporative cooling towers and would object to the introduction of sufficient chemicals to have a significant effect upon the freezing point of the circulating water as being unnecessary and a possible hazard to aquatic life in the receiving waters. Protection of cooling tower systems from freezing depends upon the waste heat being dissipated, reduction of air flow through the tower, and dewatering of pipes not conveying heated water.

Chapter 3 Design, Construction, and Operating Characteristics of Alternate Systems

1. P. 3-11 (section 3.4.1): While dual mode operation is not generally economically feasible, the addition of cooling towers to an existing once-through system makes the incremental cost of retaining the once-through capability economically attractive and will also conserve some energy provided the Power Authority is authorized to use the once-through system when its use will have minimal effect upon the Hudson River aquatic resources. We therefore feel that it is very desirable that this dual capability be retained. It would appear, however, that a basis for the utilization of the once-through system should be established so that the operating and energy savings which may be obtainable could be determined. If it is not possible to set dates between which the once-through system could be used, then an aquatic life monitoring program upon which such operations could be based should be set forth.

Use of once-through cooling whenever it would not have a serious adverse effect upon aquatic life would reduce the effect of salt drift still further and keep that terrestrial impact of the plant as low as possible.

2. P. 3-4 (section 3.3):

(a) This section states that extensive excavation will be required. The effects of excavation section (5.2.1) omits the effect of spoil disposal. Spoil disposal is not discussed in the site preparation section either (3.3). The volumes to be removed range from three to thirteen acre-feet. Depending on how and to where this material is transferred, major or minor impacts could accrue.

(Chap. 3 cont.)

Therefore, this aspect of excavation and site preparation deserves considered mention in the EIS.

(b) Consideration of the effects caused by excavation de-watering during construction should be documented.

Chapter 5.1 Atmospheric Effects

1. p. 5-17 to 5-51 - Figures 5-6 to 5-35 B: None of the diagrams of drift deposition isopleths give the units of the distance intervals. Although we assume that the intervels are miles (2.5 miles maximum) this should be stated on the diagram.

2. p. 5-7 (table 5-1): This gives the maximum monthly and annual comulative drift deposition rate at one mile and at 2.5 miles for a natural draft cooling tower. Of course, these points are not necessarily points of maximum deposition associated with the cooling tower. Realistic maximum monthly and annual deposition rates must be presented, including the expected distance and degrees azimuth from the cooling tower. This should be for the highest expected average monthly and annual relative humidity-not an unrealistic assumption of 90% relative humidity.

3. p. 1-7 (section 1.6): The third paragraph of this section states"(2) wind speeds within the valley tend to be lower than in the open terrain." The assumption is doubtful-especially in the direction of the river channel. For this "prevailing" North-South wind direction, the wind speed will likely be greater in a valley than in flat topography, due to the concentration of the air mass.

4. General Comment: From an air quality viewpoint we concur with the staff that their preferred choice of natural draft cooling towers will not cause violations of the suspended particulate standard nor exceed the allowable increment for settleable particulates. However, the salt fallout will cause vegetation damage. In addition, impacts on visibility, aesthetics, noise and air quality all are adverse to some extent.

(Chap. 5.1 cont)

5. General Comments: If all the cooling towers which are scheduled for existing and proposed power plants are built, more than 200 CFS of fresh water will be evaporated from the Hudson River. This constitutes approximately 10% of the MA7CD10 (minimum average 7 consecutive day flow occurring every 10 years) river flow (see table below). This will result in additional salt concentrations at the City of Poughkeepsie's water supply intake and in higher salinity in the circulating water of the cooling towers which in turn will lead to increased concentrations of settleable particulates.

EVAPORATIVE LOSSES

COOLING TOWERS - HUDSON RIVER

Proposed Facility	Fuel	Generating Capacity (MW)	H_2O Makeup (CFS)
Indian Point #2	Nuclear	864	22.8
Indiam Point #3	Nuclear	873	22.9
Bowline	Oil	1200	22.4
Roseton	Oil	1200	22.4
Cementon**	Nuclear	1200	31.6
Quarry/Athens*	Coal	700	13
Stuyvesant**	Coal/Nuclear	2400	63.2***
Mid-Hudson**	Coal/Nuclear	1300	34.4***
			232.7

* Proposed backup site for proposed PASNY Arthur Kill Facility.

** Proposed

*** Estimated from Cementon.

(Chap. 5.1 cont.)

6. Section 5.2.26., page 5-63

NRC staff should be informed that any salts (or other material remaining after evaporation of water) which are contained in settleable droplets constitute settleable particulates. Thus maximum impacts should be evaluated together with background data and compared with State settleable particulate standards. The Department will permit an increment of up to 0.1 $mg/cm^2/mo$ annual average where standards may presently be exceeded. If the standards will not be exceeded the allowable impact may be greater than this increment.

7. Section 5.1.3.1, p. 5-5

It is stated that the highest NDCT off-site salt deposition rate was found by the applicant to be 350 $kg/km^2/month$ (about 3 lb/acre/month). However, Figure 5.1 (Ref: ER - cc - 3 , Fig. 6-5) shows the maximum isopleth to be 200 $kg/km^2/month$. There should have been at least a 300 isopleth in this figure.

8. General Comment

To further reduce salt drift concentrations, consideration should be given to the addition of fans to a natural draft cooling tower (450-550 ft. tall) to increase the plume height and thereby increase dispersion. These fans could be operated only in the most environmentally critical months (July to October). This alternative should be discussed in the environmental statement.

9. P. 5-15 (Table 5-2)

It is not clear whether this table of cooling tower parameters pertains to both IP-2 and IP-3 or to IP-3 alone. Since the staff performed an analysis for both towers combined, this should be clariifed. These parameters should be in terms of the projected full load for both plants (see comment #1 (page 1)of the present review).

Chapter 5.2 Terrestrial Impacts and Land Effects

1. P. 5-52 (Section 5.2.1): The Statement does not address the presence of rare or endangered plants or animals on site. The staff (and the applicant) should consult with Curators of botany, zoology, etc. at New York State Museum to see if there are established stations for such species and include these in this section. Any construction should avoid disturbance if established stations of flora and fauna in the State are present on the site.

2. P. 5-59 (Section 5.2.2.4): The staff estimated the replacement cost of ornamental plants damaged by salt drift. However, no-where does the staff estimate the cost of reforesting public land or replacing non-ornamental plants which occur on private or public property. Later in the summary the staff stated that "the total number of trees at risk is relatively small and replanting of trees after a severe damaging episode would be both technically and financially possible" (p. 5-63), (§ 5.2.2.7), #(6):

(a) It should be indicated that this reforestration must occur on public land as well as private land. In fact the DES concentrated on the impact on privately owned trees and ignored the impact on public land, such as the Bear Mountain State Park and areas east and north of Peeksville.

(b) There was no mention of post-operative monitoring of tree damage. This should be done after drought periods or other times of stress to establish the need for reforestation.

(c) Consideration should be given to prevention of drift damage, possibly by watering of affected or sensitive plants during drift episodes to remove salt deposits from the foliage.

(Chapt. 5.2 cont'd)

3. P. 5-65 (Section 5.2.3.2): The staff does not present additional hours due to icing clearly for each alternative. Figures are somewhat confusing. Thirty hours of additional icing during the month of February seems like quite a load (equivalent to one hour per day). Staff addresses biological stress cursorily, and makes no comments as to who will be responsible for clearing dead branches etc. The staff should also address the problem associated with additional icing of roads.

Icing and wetting of roads can cause problems in parts of the country frequented by aquatic birds such as loons and grebes. These birds are attracted to wet land surfaces which they may believe to be bodies of water. They are then permanently grounded, since they require open water as a runway for take-off. The staff does not address this problem.

4. P. 5-59 (section 5.2.2.4 b): It is stated that there is a 40% chance (0.4 probability) of occurrence of a 14 day rainless period in any one year. This means that such drought conditions could feasibly occur twice in the same year or (even more likely)in two or three consecutive years. Although the next paragraph states that "Recovery of most trees would be observed the following spring" a recurrence of a drought the following summer (with the associated increase of salt deposition on leaves) could injure the trees beyond recovery. These longer term effects were not adequately considered.

In addition, even in cases where trees are not totally destroyed by the salt, their susceptibility to insect or disease damage would be increased.

Chapter 5.4 Hydrological and Aquatic Effects

1. P. 5-96 (section 5.4.1): Depletion of ground-water resources is not a likely impact of tower operations but the narrative presented does not convey that sense. The second paragraph of this section appears to be the result of editing from a larger, more detailed narrative and, as presented, leads the reader to no understandable conclusion. A more cogent paragraph should be prepared to describe the effects (or lack of effects).

Chapter 6 Socio - Economic Analysis

1. P. 6-6 (section 6.2.2.2 d): While the down time required for the tie-in of an onshore cooling system should be considered for backfitting of any existing plant, the time required for the Indian Point facility appears to be much greater because of safety aspects of a nuclear plant and the rocky nature of the Indian Point site. We agree that the outage period should be five rather than seven months since the two month refueling period for the plant can be concurrent with construction of the cooling tower.

Consideration should also be given to the possibility of planning various phases of tower construction (such as excavation and blasting) to occur over two years during periods of refueling. This would decrease the extra down time even further (to three months).

The impact report appraisal of the availability of reserves at the time of installation of the cooling tower and assignment of expected capital and operating costs of these facilities as an assesment against the cost of installation appears reasonable.

Chapter 6.3.3.3 Impact on the Human Environment

1. General Comment: In response to DEC comment 6a, Pg. 8-21 of the Final Environment Impact Statement for Indian Point No. 2 staff acknowledges the deficiencies in the Jones and Jones Study and its limited application as an assessment tool. It is further stated that, "Although the staff used portions of the study which it felt relevant, an independent assessment was conducted by staff and used as the basis for the conclusions presented in the DES and FES.

The NRC should be informed that the Department is extremely concerned to find that, despite staff's admitted lack of confidence in the Jones and Jones methodology and its apparent lack of value, for this purpose, it has again been included in the DEIS for Indian Point No. 3 to assess a visual change that staff consider to be "the most socially and economically consequential of the various possible environmental impacts."

2. General Comment: DEC is aware that it is not staff's policy to include referenced documents in their entirety in an EIS. However, the Commission should also be aware that staff's interpretations of the Jones and Jones Study cannot be properly evaluated by the State unless those portions determined to be relevant to the facility are included.

3. P. 6-46 (section 6.3.3.3 a): Staff briefly mentions the Three Mile Island, Arkansas, Zimmer, Schmehausen, and Biblis Studies which consider impact upon real estate and aesthetic perception of cooling towers by local residents. There are few Eastern U. S. rivers, if any, comparable in scenic quality to the Hudson. If these studies were used as a basis for staff's conclusions they should be presented in greater detail so that the State may determine their relevance to the Indian Point No. 3 situation.

(Chapt. 6.3.3.3 cont.)

4. P. 6-48 (section 6.3.3.3 e): Staff's summary states that, if an NDCT is installed at Indian Point Unit 2, that an NDCT for Indian Point 3 is aesthetically preferred. It is further proposed that, if an NDCT is installed at Unit 2 that an NDCT at Unit 3 would be more in proportion with the landscape and other structures than any other alternative considered. This is a direct contradiction to staff's statement, as follows, in the last paragraph on Pg. 6-46: "A natural draft tower combination at IP-2 and IP-3 would be a considerable visual intrusion to the site. A fan assisted natural draft tower combination would be less of an intrusion, but still out of proportion with other elements in the view scape. The structure of the circular mechanical draft towers would likely be in proper proportion to both the structures at the Indian Point Facility and other elements of the view scape, as would linear mechanical draft towers, but the circular mechanical draft towers have a more attractive design than do the linear mechanical draft towers."

Under the circumstances, staff should justify their conclusions that an NDCT that is admittedly out of proportion with all other elements in the landscape, including the existing IP-2 & 3 power blocks is aesthetically preferred for the IP area in general. Staff should also provide further comment concerning the fact that their final conclusion is based upon the assumption that IP-2 will have an NDCT and not upon the data they provided in the DEIS.

5. P. 6-34 (Fig. 6-1): To provide an opportunity for comparative analysis a map similar to Fig. 6-1 which shows the affected viewshed should be included for all of the alternatives mentioned in the DEIS. A similar map showing the impacted viewshed as described in the Pickard, Lowe and Associates study would also be helpful for this purpose.

Chapter 7 Evaluation of Proposed Action

1. pg. 7-1 (sections 7.2 and 7.3): These sections primarily appear to relate to the decision as to the application of cooling towers rather than to the selection of the type of cooling. Most of these sections, therefore, appear to be inappropriate to this DES.

2. P. 7-3,4 (Table 7-1): The DEC is aware of staff's position that decommissioning of the cooling system structures is dependent upon the level of decommissioning selected for the Power Block. However, in view of the significance of the visual impact on the environment, the staff in its comparative analysis of the impacts associated with the various alternative cooling systems, should consider the costs to completely dismantle, recycle, and/or remove the structures from the site irregardless of the level of decommissioning selected for the power block.