10/30/72

BEFORE THE UNITED STATES

ATOMIC ENERGY COMMISSION

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

OUTLINE SUMMARY OF
INTERVENORS' FACTUAL POSITION

1. The Hudson in the vicinity of Indian Point is a major nursery area for many fish species including striped bass, white perch, alewifes, blueback herring, tomcod, bay anchovy, smelt, and Atlantic silverside.

2. Striped bass is the most valuable fish for sports and commercial purposes which has a major nursery ground in the vicinity of Indian Point and striped bass is the most thoroughly studied fish in the nursery ground.

   a. Striped bass in the Hudson spawn eggs principally north of Indian Point.

   b. Striped bass spawning takes place annually between approximately May 15th and June 15th.

   c. Striped bass are in the planktonic mode for approximately the first six weeks of life.

   d. During the planktonic stage of life, striped bass are moved southward from the major spawning areas to their nurseries in the areas of brackish water.

e. Significant numbers of striped bass in the planktonic form are present in the immediate vicinity of Indian Point between approximately May 15th and July 30th.

3. While in the planktonic mode, and in the first weeks of the immediately following pelagic mode, striped bass in the Hudson are largely distributed by hydrological forces.

   a. The distribution of the fish is influenced by any northward moving saline wedge on the bottom.

   b. The distribution of the fish is influenced by the fresh water moving southward.

   c. The distribution of the fish is influenced by the tidal movements.

   d. There is no reliable evidence that the fish in te the planktonic mode in the vicinity of Indian Point vary significantly in horizontal distribution.

4. Operating at full capacity under normal conditions, Indian Point No. 1 will withdraw 319,000 gpm from the Hudson.

5. Operating at full capacity under normal conditions, Indian Point No. 2 will withdraw 840,000 gpm from the Hudson.

6. Operating at full capacity of 1240 mw under normal conditions, Bowline Point (2 units) will withdraw 768,000 gpm from the Hudson.

   a. Bowline Point is situated 5 miles downstream from Indian Point within the same nursery ground.

   b. The first unit at Bowline Point began operation in 1972.

   c. Bowline Point is scheduled to begin operation at full capacity in summer, 1974.

   d. Con Edison owns two-thirds of Bowline Point.

   e. Con Edison will receive at least two-thirds of the electrical power generated by Bowline Point.

7. Operating at full capacity of 1,200 mw under normal conditions, Roseton (2 units) will withdraw 650,000 gpm from the Hudson.

   a. Roseton is situated 22 miles north of Indian Point in an area significant for the Hudson fishery for spawning.

   b. The first unit at Roseton is scheduled to begin operation in the fall of 1972 and the second unit is scheduled to begin operation in the spring of 1973.

   c. Con Edison will own 40% of Roseton until 1977.

   d. Con Edison will receive 40% of the electrical power generated by Roseton until 1977.

8. The present screening devices allow most planktonic and pelagic organisms up to the size of approximately 2 inches to pass through the cooling system of

   a. Indian Point Unit No. 1.

   b. Indian Point Unit No. 2.

   c. Bowline Point.

   d. Roseton.

9. Under normal operating conditions, planktonic and early pelagic organisms entering Indian Point Unit No. 1 between May 15th and July 30th will be subjected to

   a. A speedy temperature rise of 12.4°F and will be exposed to the raised temperature for some time.

   b. Repeated rapid changes of pressure.

   c. Mechanical damage.

   d. Periodic chemical damage.

10. Under normal operating conditions, planktonic and early pelagic organisms entering Indian Point Unit No. 2 between May 15th and July 30th will be subjected to

   a. A speedy temperature rise of 14.9°F and will be exposed to the raised temperature for some time.

b. Repeated rapid changes of pressure.

c. Mechanical damage.

d. Periodic chemical damage.

11. Under normal operating conditions, planktonic and early pelagic organisms entering Bowline Point between May 15th and July 30th will be subjected to

a. A speedy temperature rise of 13.5°F and will be exposed to the raised temperature for some time.

b. Repeated rapid changes of pressure.

c. Mechanical damage.

d. Periodic chemical damage.

12. Under normal operating conditions, planktonic and early pelagic organisms entering Roseton between May 15th and July 30th will be subjected to

a. A speedy temperature rise of 15.4°F and will be exposed to the raised temperature for some time.

b. Repeated rapid changes of pressure.

c. Mechanical damage.

d. Periodic chemical damage.

13. Fish in the planktonic form and in the first weeks of the immediately following pelagic mode entering the cooling systems of Indian Point Unit No. 1, Indian Point Unit No. 2, Bowline Point and Roseton will suffer a severe adverse impact; it is most likely that all or nearly all striped bass will be killed by passage through the cooling systems as presently planned for operation.

14. Approximately 20% of the annual production of striped bass in the Hudson will pass through the cooling systems of Indian Point Units 1 and 2 combined in the planktonic mode and the first weeks of the immediately following pelagic mode.

15. In addition, with Indian Point Units 1 and 2 operating, approximately 20% of the annual production of striped bass in the Hudson will pass through the cooling systems of Bowline Point and Roseton combined in the planktonic mode and the first weeks of the immediately following pelagic mode.

16. Significant damage to the Hudson populations of white perch, alewife, blueback herring, bay anchovy, smelt and Atlantic silverside is probable due to their passage through the cooling systems at Indian Point Units 1 and 2, Bowline Point and Roseton.

17. Gammarus and Neomysis are important food material for juvenile fish in the Hudson such as striped bass.

18. Gammarus and Neomysis have reproduction cycles of 1 to 3 generations a year.

19. Gammarus and Neomysis will pass through the cooling systems of Indian Point Units 1 and 2, Bowline Point and Roseton.

20. A significant proportion of Gammarus and Neomysis passing through the cooling systems of the plants will be killed during the summer period.

21. The proportion of Gammarus and Neomysis in the Hudson which will pass through the cooling systems of the plants is unknown.

22. The precise impact of the loss of Gammarus and Neomysis passing through the cooling systems of the plants on the food supply of juvenile fish in the Hudson is unknown, but will involve a significant loss of food organisms.

23. A further adverse impact on the food chain will occur through a significant loss of phytoplankton as a result of passage through the cooling systems of Indian Point Unit No. 1, Indian Point Unit No. 2, Bowline Point and Roseton.

24. Significant numbers of fish have been killed at the intake screens of Indian Point Unit No. 1, but complete numbers are not available.

    a. Con Edison's records of fish kills have not been kept in a complete and uniform manner which would facilitate determining the influence on total fish killed of such factors as (i) ambient temperature of the river, (ii) plume of heated water from discharge, (iii) velocity of water at intake, (iv) total volume of water withdrawn from the Hudson, (v) fish protection devices such as screens (fixed and travelling), louvres, baffles, sonic devices, electric fields or lights.

b. Con Edison's records of fish kills have (i) omissions of days when counts were not made, (ii) periods within the day when screen washings were missed, (iii) omissions of fish killed and not counted.

25. During 1970-71 when flows were reduced at Indian Point Unit No. 1, there was some reduction in fish kills.

26. Reduction of flow will reduce fish kills somewhat in the winter.

27. Extrapolations from records of fish kills indicate that in a typical year approximately the following numbers of fish will probably be killed at the intake screens to Indian Point Unit No. 1 when the plant is at full capacity under normal operating conditions:

Month	Fish killed per day
Jan.	20,300
Feb.	7,600
March	4,200
April	1,000
May	500
June	500
July	1,900
Aug.	3,300
Sept.	1,900
Oct.	1,700
Nov.	1,600
Dec.	6,900

28. The intake pumps for Indian Point Unit No. 2 were test operated in 1971 and 1972.

a. The velocity at which water passes through the intake screens at Indian Point Unit No. 2 is greater than that at Indian Point Unit No. 1.

b. Indian Point Unit No. 2 withdraws more than two and a half times the volume of water withdrawn by Indian Point Unit No. 1.

c. During the tests, no heated water was discharged from Indian Point Unit No. 2 and there was no thermal attraction of fish due to Indian Point Unit No. 2 discharge.

29. During the winter months, fish will be attracted to the plant site by the thermal discharge plume from Indian Point Unit No. 1 and Indian Point Unit No. 2 and their vulnerability to death by impingement will be increased.

30. On the average, at least 4 times as many fish will be killed at the Indian Point Unit No. 2 intake screens as will be killed at the Indian Point Unit No. 1 screens.

31. It is likely that when Indian Point Unit Nos. 1 and 2 are operating at full capacity under normal conditions at least 7.5 million fish will be killed on the intake screens of the two plants, assuming continuing high population size.

32. It is probable that the total fish kills will be made up of at least 5% striped bass.

33. It is probable that the total fish kills will be made up of more than 75% white perch.

34. The killing of fish on the intake screens of Indian Point Unit No. 1 and Indian Point Unit No. 2 will have a significant adverse impact on the fishery and general ecology of the Hudson, particularly on the white perch population.

35. The killing of eggs, larvae and fish by passage through the cooling systems at Indian Point Unit Nos. 1 and 2, Bowline Point and Roseton or by impingement will have a significant adverse impact on the fishery and ecology of the Hudson, particularly on the annual production of striped bass which will be reduced by approximately 56%.

36. The Hudson nursery ground is a major contributor to the Mid-Atlantic and New England striped bass fishery.

37. There is no indication that compensatory effects will reduce the significance in the adult population of the percentage reduction in the larval, juvenile and young of year population.

38. The reduction of the annual striped bass population in the Hudson by 56% will result in a massive reduction in the striped bass fishery along the mid and north Atlantic coast as that year class enters the fishery four to five years later.

39. A serious reduction of the fishery will be caused by any continued reduction of the breeding stock.

40. The total adverse impact on the fishery of the Hudson from the discharge of heated water in unknown.

41. Cooling water passing through Indian Point Unit No. 1 shows a loss of dissolved oxygen varing from .5 to 1.6 mg/litre.

42. Losses of dissolved oxygen in cooling water similar to those at Indian Point Unit No. 1 may be expected at Indian Point Unit No. 2.

43. The dissolved oxygen in the water entering Indian Point Unit No. 2 is below 6.0 mg/litre from June through September.

44. State water quality standards require a dissolved oxygen content in the water of 5.0 mg/litre.

45. Control over expected chemical discharge from Indian Point Unit No. 2 is inadequate.

    a. Chemical 'releases are dependent on operating and plant conditions the timing of which cannot be controlled in most circumstances.'

    b. Copper detection sensitivity in the discharge canal is limited to 1 part per million.

    c. There is no indication as to how or whether chemicals will be released separately or together.

46. The release of chlorine and its compounds will have a significant adverse impact on the fish and other aquatic biota in the vicinity of Indian Point.

47. The presently proposed cooling system has inadequacies.

    a. The present cooling system has a significant adverse impact on fish of screenable and non-screenable sizes.

    b. The present cooling system has a significant adverse impact on the other aquatic life of the Hudson.

    c. The intake structure cannot be varied to draw from different parts of the water column in order to take advantage of vertical variations in fish distribution.

    d. The inlet screens become clogged with trash and fish, resulting in higher velocities through the screens.

48. The installation of a closed-cycle natural draft cooling system will reduce withdrawal of water from the Hudson to 2-1/2 to 5% of the volume needed for once-through cooling.

    a. Reduction of volume of water withdrawn will proportionately reduce the amount of fish and other non-screenable organisms passing through the cooling system of Indian Point Unit No. 2.

    b. Reduction of volume of water withdrawn will very substantially reduce the number of fish killed at the intake screens to Indian Point Unit No. 2.

49. The cost of a closed cycle natural draft cooling towers at Indian Point is approximately $17.5 to $30 million.

50. The installation of a closed-cycle natural draft cooling tower system will require some additonal or modified pumping equipment.

51. The installation of a closed-cycle natural draft cooling tower system will substantially reduce the discharge of heated water into the Hudson.

52. There is no reliable evidence that the operation of a closed-cycle natural draft cooling system will result in

    a. A fogging problem.

    b. A saline drift problem.

    c. A noise problem.

53. There are indications that the installation of a closed-cycle natural draft cooling tower system will result in an aesthetic problem by intruding on the landscape.

54. It will take no more than two and one-half years to construct a natural draft closed cycle cooling system and place it in operation.

55. Indian Point Unit No. 2 will be shutdown for eight weeks of maintenance each year.

56. The rate of production of power at Indian Point Unit No. 2 can be altered between 10 and 100% of full power in less than 20 minutes; Indian Point 2 can be brought from hot shutdown to 10% of full power in a short period.

57. The fishery dependent on the Hudson has a multi-million dollar value.

    a. The 1970 value of the Atlantic striped bass fishery supported by the Hudson in terms of sports catch is approximately $73 million dollars.

    b. The 1970 value of the Atlantic striped bass fishery supported by the Hudson in terms of commercial catch is approximately 2.4 million dollars.

58. The Conservation Law of the State of New York prohibits the taking of fish by the drawing off of water and imposes a penalty of $10 for each fish so taken.