

John D. O'Toole
Vice President

Consolidated Edison Company of New York, Inc.
4 Irving Place, New York, NY 10003
Telephone (212) 460-2533

Letter No. 81-100
May 22, 1981

Re: Indian Point Station
Docket Nos. 50-003
50-247



Mr. Boyce H. Grier, Director
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
Region I
631 Park Avenue
King of Prussia, PA 19406

Dear Mr. Grier:

Your letter dated April 10, 1981 enclosed IE Bulletin No. 81-03 which relates to potential flow blockage of cooling water to safety system components by Corbicula sp. (Asiatic clam) and Mytilus sp. (Mussel). Our response to IE Bulletin No. 81-03 is provided in the Attachments to this letter.

This information is being submitted pursuant to Section 182a of the Atomic Energy Act of 1954. Should you or your staff have further questions on the letter or attachments, please contact me.

Very truly yours,

Attachments

cc: Mr. T. Rebelowski, Resident Inspector
U. S. Nuclear Regulatory Commission
P. O. Box 38
Buchanan, New York 10511

Subscribed and sworn to before
me this 22 day of May, 1981.

Notary Public

THOMAS LOVE
Notary Public State of New York
No. 31-2409638
Qualified in New York County
Commission Expires March 30, 1983

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ATTACHMENT I

Item (1)

Determine whether Corbicula sp. or Mytilus sp. is present in the vicinity of the station (local environment) in either the source or receiving water body. If the results of current field monitoring programs provide reasonable evidence that neither of these species is present in the local environment, no further action is necessary except for items 4 and 5 in this section for holders of operating licenses.

Response (1)

We have determined that neither Corbicula sp. nor Mytilus sp. is present in the Hudson River in the vicinity of the Indian Point Station and therefore neither direct visual inspections nor water flow measurement of the individual system components as per Action Items 2 and 3 are deemed necessary. This determination is based upon the consideration that neither species has been collected in prior sampling efforts in the vicinity of Indian Point (see response to Item 5) nor has either appeared in the periodic inspections of the Station's condenser water boxes and tubing.

The spread of Corbicula sp. is closely monitored by several scientific groups, including utility biologists. Communication with individuals with active interest in the subjects of Corbicula sp. distribution and/or Hudson River benthos indicates that this clam is not found in the Hudson River. Mytilus is only found in the most saline reaches of the estuary, and has not extended its range to include the area of the Indian Point Station (see response to Item 4 and 5).

During a recent (November-December 1980) replacement of fan cooler unit components and service water piping repairs and modifications, examination of the removed lines directly confirmed the absence of these organisms and their relic shell debris. Actually, there is no evidence that any benthic macroinvertebrate blockage problem has ever occurred at the Indian Point Station.

Item (4)

Describe methods either in use or planned (including implementation date) for preventing and detecting future flow blockage or degradation due to clams and mussels or shell debris. Include the following information in this description:

- a. Evaluation of the potential for intrusion of the organisms into these systems due to low water level and high velocities in the intake structure expected during worst case conditions.
- b. Evaluation of effectiveness of prevention and detection methods used in the past or present or planned for future use.

Response (4)

Methods in use for preventing and detecting future flow blockage or degradation due to clams, mussels or shell debris include routine monitoring and logging (every 4 hours) of the operating temperature of components cooled by the service water system (e.g. generator seal oil coolers, generator hydrogen coolers, component cooling heat exchangers, etc.). This measure provides an effective and reliable method for detecting anomalies such as flow blockage or degradation in the system. In addition, periodic physical examination (typically 2-3 times per year at Unit 2) of the condenser water boxes and tubes is undertaken to determine whether chlorination is required. Based on these condenser inspections, there has been no need to chlorinate on a regular basis for the past several years. The last chlorination at the Indian Point Station was performed during August 1978.

Since neither Corbicula nor Mytilus has been found during the physical examinations of the cooling water and service water systems or in river sampling near Indian Point, it is reasonable to assume that a worst case combination of low water and high intake velocity would not result in an uptake of these bottom dwelling macroinvertebrates.

2

It is possible that Corbicula could become established in the Hudson River. In our judgment, the very low water temperatures during the winter months and the Indian Point region's variable salinity regime will prevent colonization from reaching nuisance levels rapidly. Therefore, we believe that the periodic condenser inspections will adequately forewarn of infestation by this organism. These inspections would also detect the presence of Mytilus, but it is considered highly unlikely that this species would suddenly emerge as a biofouler at the Station. Mytilus has been found in the Hudson River only as far north as the George Washington Bridge. Its absence in the Indian Point area is almost certainly attributable to the freshwater and low salinity conditions which prevail there for much of the year (e.g., conductivity generally remains below 1 mS/cm except from June through September). Mytilus larvae are especially intolerant of such conditions.

Item (5)

Describe the actions taken in items 1 through 3 above and include the following information:

- a. Applicable portions of the environmental monitoring program including last sample date and results.
- b. Components and systems affected.
- c. Extent of fouling if any expected.
- d. How and when fouling was discovered.
- e. Corrective and preventive actions.

Response (5)

It was determined that infestation by Corbicula sp. and Mytilus sp. of safety system components is not a problem at Indian Point since neither species appears in the local environment.

Attached (Attachment II) are summary descriptions of the most recent environmental sampling programs conducted in the area of Indian Point (river mile 43) and other locations on the Hudson River. The Bowline Point Station is located at river mile 38, Ossining is located at river mile 34, Cornwall is located at river mile 57, and the Roseton/Danskammer Stations are located at river mile 65.

ATTACHMENT II

Con Edison, Power Authority of the State of New York, Orange and Rockland Utilities and Central Hudson Gas and Electric Corp. have independently or jointly financed several studies which have examined the composition of the Hudson River benthic community. Collectively, these efforts represent a comprehensive analysis of benthos in the vicinities of the river's generating stations, and to a lesser extent, characterize the benthic composition of the middle estuary (from the Tappan Zee Bridge to Albany). Studies were conducted from 1971 through 1977. Each study was generally restricted to a small geographical region, e.g., in the vicinity of an existing or proposed generating station.

Neither Corbicula sp. nor Mytilus sp. were found in any of these studies. A brief description of sampling procedures for each investigation is provided on the following pages.

Hudson River Environmental Study in the area of Ossining. January 1975.
(Prepared for Consolidated Edison Co. of New York, Inc. by Texas Instruments Incorporated)

Quantitative benthic samples were obtained monthly from May through December 1972 and March through April 1973 at six sampling stations using a Petersen dredge. Since the dredge sampled an area of 0.1m^2 , densities were recorded as mean number of organisms per 1.0m^2 of bottom. Supplementary benthic samples were obtained with minnow seines in the littoral zone at the Hudson near river mile 33. All benthic samples were washed using $250\ \mu$ mesh seines.

Benthic Landfill Studies Cornwall, February 1975. (Prepared for Consolidated Edison Co. of New York, Inc. by Texas Instruments Incorporated)

The benthos and epibenthos near Cornwall were sampled between May 1973 and June 1974 during ice-free periods. Five different sampling gear were used: artificial substrates, Petersen grab (dredge), epibenthic sled (0.5m^2), sweep net and 0.5m diameter plankton net. Up to nine individual sampling stations, all within one mile of the proposed Cornwall station (river mile 56), were sampled each month, with the exception of artificial substrates which were set and retrieved within two week intervals. Densities and total numbers collected per taxon were reported.

Hudson River Ecological Study in the area of Indian Point Thermal Effects Report. September 1976. (Prepared for Consolidated Edison Co. of New York, Inc. by Texas Instruments Incorporated)

Benthos was sampled monthly (April through December) from 1972 through 1974 using a 0.1m² Petersen dredge at seven stations from river miles 39 to 42. Five replicate samples per station were taken during 1972; three replicate samples per station were taken during 1973-74. In 1972-73, a biological dredge qualitatively sampled the mobile epibenthic community; this community was also sampled with a 0.25m² epibenthic sled in 1974. In 1972, littoral benthos was sampled qualitatively at six stations using sweep nets, minnow seines, sand seines and dip nets on a bimonthly basis. Artificial substrates were placed at seven stations located between river miles 38 and 44; the substrates were analyzed after a one month colonization period. Samples were washed in seines ranging from 0.25 mm mesh to 4.0 mm mesh. Organisms were identified, enumerated and weighed. Densities and biomass data were calculated for each benthic species.

Bowline Point Generating Station. Near-Field Effects of Once-Through Cooling System Operation on Hudson River Biota. July 1977. (Prepared for Orange and Rockland Utilities, Inc. by Ecological Analysts, Inc.)

Several Ekman or Ponar dredge samples were collected at variable sampling frequencies at four to fifteen stations in the vicinity of Bowline Point from 1969 through 1976.

The dredge samples were washed using a 420 μ mesh (April-July 1971 and 1974-76) or a 500 μ mesh (December 1971-1972, 1973) sieve. Duplicate samples per sampling station were analyzed; the organisms were identified, enumerated, weighed and reported as numbers or grams per 0.25 ft².

Roseton Generating Station. Nearfield Effects of Once-Through Cooling Operation on Hudson River Biota. July 1977 (Prepared for Central Hudson Gas & Electric Corp. by Ecological Analysts, Inc.)

A macrobenthic sampling program was performed in the vicinity of the Roseton and Danskammer Stations from 1971 through 1976. Generally, several Ekman or Ponar dredge samples were collected monthly or bimonthly from spring through autumn of each year at three to eight stations in the vicinity of the stations. The dredge samples were washed through 420 or 500 μ mesh sieves and were identified, enumerated and weighed.

1977 Annual Progress Report. 1978. (Prepared for Central Hudson Gas & Electric Corp. by Lawler, Matusky & Skelly Engineers)

From 1975 through 1977, a Hester-Dendy Artificial Substrate Program was conducted in the vicinity of the Roseton and Danskammer Generating Stations. The samplers were set in triplicate at six stations at depths of 20 feet for two month colonization periods. The samplers were first set in April, the last set was retrieved in December; these four sampling sets were run each year. In the laboratory, unpreserved replicated samples were scraped and washed through a 425 μ mesh sieve. Following the washing process, the organisms were identified, counted and weighed (the latter for biomass determinations). Mean abundances and biomass were determined for each station and taxon.