POWER AUTHORITY OF THE STATE OF NEW YORK
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February 23, 1978
IPO-57

Office of Nuclear Reactor Regulations
US Nuclear Regulatory Commission
Washington, D.C. 20555

Attention: Mr. Robert W. Reid, Chief
Operating Reactors, Branch No. 4

Subject: Power Authority of the State of New York
Indian Point 3 Nuclear Power Plant
Docket No. 50-286

Dear Mr. Reid:

As requested by Mr. P. Erickson via telephone conversation, the Power Authority herewith provides responses to NRC inquiries for general information concerning the proposed Spent Fuel Pit Modifications.

Very truly yours,

George T. Berry

George T. Berry
General Manager and
Chief Engineer

Att.
cc: (w/att.): Lex K. Larson, Esq.
Hon. George V. Begany
Hendrick Hudson Library

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ATTACHMENT I

RESPONSES TO NRC INQUIRIES

1. Give the year (and number of fuel cycles) to which storage space will be provided by the new rack design.

Response

The Authority's submittal dated July 13, 1977 indicated that all analyses had been performed for the discharge of 64 assemblies at every refueling on a 15-month schedule (a fullcore is 193 assemblies). The 837 spent fuel storage locations will store fuel for 13 fuel cycles through 1993, without full-core storage reserve, or for 10 fuel cycles through 1989, with full-core storage reserve. The calculation assumes full power license operation and an anticipated first refueling outage in May-June 1978.

2. Provide the power output basis used for the heat calculations.

Response

The Authority's submittal dated September 1, 1977 indicated that the heat generation rate for the spent fuel assembly is based on a thermal power rating of 3,025 MWT for a core of 193 fuel assemblies.

3. What is the status of the installation of the backup Spent Fuel Pit Cooling System Pump?

Response

The pump is scheduled for installation during the next refueling outage in May-June 1978.

4. Do the normal (128F) and maximum (153F) pool water temperatures for full fuel discharge assume only one cooling pump operating?

Response

Yes.

5. What alternatives were considered to the spent fuel storage expansion at IP3?

Response

Consolidated Edison's submittal dated June 22, 1976 presented two alternatives:

a. Ship fuel to and store at an independent storage facility (15-years)
b. Ship fuel to and store at a reprocessor's facility (10-years)

The costs of these alternatives are identified as 75-85 and 90-130 $/kgU, respectively, in the Con Ed submittal. Since there are approximately 450 kgU in each fuel assembly the costs per assembly will be an average of $36,000 and $49,500 for alternatives (a) and (b), respectively. The Con Ed analysis, also indicated that the generally accepted rates for the cost of shipping spent fuel from a nuclear power plant to an off-site storage facility were in excess of $10/kgU or $4,500 per assembly.

It should be noted that storage capacities at IP-2 and JAFitzPatrick are dedicated to the use by those facilities and storage racks at IP1 are not compatible with IP3 fuel.

6. Provide: (a) Net cost per day for replacement energy, and (b) Annual cost for capital and operation and maintenance expenditures.

Response

(a) At a generation rate of 873 MWe (or 1033 MWe), and assuming that the replacement power costs would be 31.2 mills/kWhr for oil, 120.5 mills/kWhr for coal and 13.3 mills/kWhr for nuclear, and assuming a 60-35-5 generation mix replacement energy costs are $554,000 per day (or $650,000 per day for 1033 MWe)

(b) Annual Costs are as follows:

. Cost of Interest and Capital Recovery (including allowance for debt service)	$46,000,000
. Operation and Maintenance Cost (not including fuel costs)	7,690,000
. Annual Fuel Costs (873 MWe, 65% capacity factor)	12,410,000
Total	66,100,000

For operation at 1033 MWe annual fuel costs would become approximately $14,680,000.

7. Are the existing racks made of stainless steel?

Response

Yes.

8. Is the spent fuel pit clean and dry?

Response

Yes.

9. How many pounds of stainless steel are used in the new racks?

Response

The stainless steel in the racks weighs approximately 353,000 lbs.

10. How many pounds of boron are used in the new racks?

Response

The total weight of borated stainless steel used is approximately 67,335 lbs. Since boron concentration is 1.0 percent by weight, there are approximately 700 lbs of boron used in the racks.

11. What is the length of the fuel cycle and the number of assemblies removed per fuel cycle?

Response

See item 1.

12. What is the cost of the modification per assembly?

Response

Existing fuel racks had sufficient capacity for 264 assemblies. The proposed design will store 840 assemblies. The total cost of installing the new racks is estimated at $2.8 million. The cost per installed assembly storage (840 assemblies) will be approximately $3,330 and the cost per additional assembly storage (840-264=576 assemblies) will be approximately $4,860.

13. Is the temperature of the fuel pool controlled manually or automatically?

Response

Manually.