July 30, 1975

Docket No. 50-220/219/247

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Mr. Paul Arbesman
Environmental Protection Agency - II
26 Federal Plaza
New York, New York 10007

Subject: SEE ATTACHED SHEET

The following documents concerning our review of the subject facility are transmitted for your information:

- [ ] Notice of Receipt of Application.
- [ ] Draft Environmental Statement, dated ______.
- [ ] Final Environmental Statement, dated ______.
- [ ] Safety Evaluation, or Supplement No. ______, dated ______.
- [ ] Notice of Hearing on Application for Construction Permit.
- [ ] Notice of Consideration of Issuance of Facility Operating License.
- [ ] Application and Safety Analysis Report, Vol. ______.
- [ ] Amendment No. ______ to Application/SAR, dated ______.
- [ ] Construction Permit No. CPPR- ______, dated ______.
- [ ] Facility Operating License No. DPR- ______, dated ______.
- [x] Proposed Technical Specifications, or Change No. ______, dated ______.
- [ ] Other: ______

Directorate of Licensing

Enclosures:
As stated

cc:

OFFICE ▸	ORB#3					
SURNAME ▸	SATeets:kmf					
DATE ▸	7/30/75					

Form AEC-318 (Rev. 9-53) AECM 0240   GPO C43-16-81465-1 445-678

NIAGARA MOHAWK POWER CORPORATION
DOCKET NO. 50-220

Proposed tech spec change regarding the definition of fuel integrity limits based on the most recent calculations of conservative margins to maintain fuel cladding integrity. Dated June 30, 1975.

JERSEY CENTRAL POWER & LIGHT COMPANY
DOCKET NO. 50-219

Proposed tech spec change to revise the Limiting Conditions for Room Air Treatment System. Dated June 30, 1975.

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
DOCKET NO. 50-247

Proposed tech spec change regarding permission to reduce the minimum water volume requirement for the Refueling Water Storage Tank. Dated June 11, 1975.

Proposed tech spec change regarding plant reporting requirements. Dated June 24, 1975.

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Docket No. 50-220

Ms. Sue Reinert
Ecology Action of Oswego
Box 94
Oswego, New York 13126

Dear Ms. Reinert:

In a recent (undated) letter, Dr. Marvin Resnikoff provided us a copy of a letter dated May 22, 1975 which you had addressed to the Nuclear Regulatory Commission. We have searched our files and inquired about your letter but have found no record of its receipt. Nevertheless, we have responded to the questions posed by you and also by Dr. Resnikoff. Copies of our response sent to Dr. Resnikoff are also enclosed herewith for your information.

I hope that the enclosed information is responsive to your enquiry and that of Dr. Resnikoff. If I can be of further assistance, please do not hesitate to contact me.

Sincerely,

/S/

Karl R. Goller, Assistant Director
for Operating Reactors
Division of Reactor Licensing

Enclosures:
1. Response to questions from Ms. Sue Reinert
2. Response to questions from Dr. Marvin Resnikoff

KRG

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ENCLOSURE 1

RESPONSE TO QUESTIONS FROM SUE REINERT

Question 1

"What is the maximum cooling capacity of each spent fuel storage pool cooling "loop" (i.e. pump and heat exchanger combination)? Please state the assumptions that were made, such as maximum temperature of coolant?"

Response

Assuming that the spent fuel storage pool is maintained at a temperature of 125°F, the cooling capacity of each of the two cooling loops is $14x10^6$ BTU/hr. Assuming that the spent fuel storage pool is maintained at a temperature of 150°F, the cooling capacity of each of the two cooling loops is $24x10^6$ BTU/hr. The calculations of the above mentioned cooling capacities are based on the assumption that the reactor building cooling water system temperature is maintained between 85° and 90°F. The reactor building cooling water system provides cooling water to the heat exchangers in the spent fuel storage pool cooling system.

Question 2

"What is the basis for the statement that both systems together can handle $20x10^6$ BTU/hr?"

Response

The spent fuel storage pool cooling and filtering system is designed to remove the decay heat generated in the spent fuel assemblies and the impurities from the pool water so as to maintain the temperature and purity of the spent fuel pool water at acceptable levels, assuring water clarity under all anticipated conditions. A stabilized spent fuel storage pool temperature of 125° was conservatively chosen as that temperature which would assure that the system design objectives are met. With a stabilized spent fuel storage pool temperature of 125°F the total heat removal capacity of both cooling loops is $28x10^6$ BTU/hr. This cooling capacity is more than adequate to handle the $20x10^6$ BTU/hr heat load which would be placed on the spent fuel storage pool in the event of storage of 150% of the core as described in the FSAR.

Question 3

"Are both cooling "loops" currently being used at Nine Mile Point Unit 1? If so, for how long have they been used? If not, when do you anticipate that both will be required to operate?"

Response

One spent fuel storage pool cooling loop provides adequate cooling for the spent fuel presently stored in the pool. In the event that approximately 50% of the fuel assemblies currently in the core were transferred to the fuel storage pool 12 days after Unit shutdown, the increased heat load would approach the single cooling loop capacity of $14x10^6$ BTU/hr. Therefore, a transfer of greater than 50% of the fuel assemblies in the core under the circumstances described above would necessitate the use of both cooling loops to maintain the spent fuel storage pool temperature less than 125°F. It should be noted that during the early days following reactor shutdown for refueling, the decay heat generated by the fuel and, therefore, the heat load on the spent fuel storage pool would decline.

Question 4

"What is the schedule of testing for the backup cooling loop? If it is not in use, when was it last tested?"

Response

The spent fuel storage pool cooling loops are alternated on a monthly basis. Since both cooling "loops" (i.e. the combination of a pump and heat exchanger) are identical to each other, the loop which is not in service at a particular point in time is considered to be the backup loop.

Question 5

"What provisions are made for situations when both systems are needed but one of them is out of service?"

Response

In the event that storage of 150% of the core (under circumstances as described in the FSAR) occurred, the heat load on the spent fuel storage pool cooling system would be $20x10^6$ BTU/hr. Based upon the available storage capacity of the spent fuel storage pool this situation would result in the maximum possible heat load being placed on the cooling system. Assuming that this worst case situtation has occurred, the subsequent loss of one spent fuel storage pool cooling loop would result in a fuel pool temperature rise. The fuel storage pool temperature would stabilize at a temperature less than 150°F. Such a situation poses no immediate threat to public health and safety and can be corrected by

restoration of the failed cooling loop to service.

Question 6

"What effect will a rise in the temperature of the reactor coolant have on the capability of the fuel pool cooling system?"

Response

None. Interrelation between the reactor coolant system (RCS) and the spent fuel storage pool cooling system (SFPCS) occurs via the secondary cooling water provided by the reactor building cooling water system. This latter system services heat exchangers in both the RCS and SFPCS. The design capacity of the reactor building cooling water system precludes a reactor coolant temperature rise from affecting the cooling capability of the spent fuel storage pool cooling system.

ENCLOSURE 2

RESPONSE TO QUESTIONS FROM DR. RESNIKOFF

Question 1

"Referring to a statement made by Dr. Knuth in his letter to Dr. Resnikoff dated April 30, 1975: 'If the licensee reaches a point where he has used all onsite spent fuel storage space and has consumed the fuel in the reactor, and has nowhere to ship spent fuel to make storage room for defueling the reactor, then he would have no choice but to reduce and eventually cease power production.' Your criteria for shutdown seems to be when the reactor and spent storage pool are full. We are asking for a statement of your assumptions to this conclusion, and quantitative criteria for a shutdown of Nine Mile Point-1 reactor."

Response

The situation described by Dr. Knuth does not involve an NRC criterion for shutdown of a reactor. The situation does describe a situation in which a licensee would have no alternative but to shutdown the reactor.

Question 2

"Is the cooling capacity of each spent fuel storage pool cooling train (i.e. pump and heat exchanger combination) equal to one-half the total capacity? What assumptions go into the determination of cooling capacity?"

Response

See response to question 1 of Enclosure 1.

Question 3

"Are there credible circumstances in which the coolant would heatup, thereby lowering the cooling capacity of the spent fuel cooling system? Is this situation further jepordized by the storage of a large amount of fuel in the spent fuel storage pool? Please explicitly state your assumptions."

Response

See responses to questions 2, 3, and 5 of Enclosure 1.

Question 4

"How much fuel of what reactor exposure, for what cooling period must be in the spent fuel pool before both cooling systems are required to operate simultaneously? We are assuming that one cooling system

serves as a backup for the other, in case one should break down, and that the use of both pumps simultaneously would be an undesirable operating condition. Is there a conceivable set of circumstances which would lead you to this undesirable condition?"

Response

See responses to questions 3 & 4 of Enclosure 1. Additionally, the spent fuel storage pool cooling system is designed with two identical "loops" (trains) consisting of a pump and heat exchanger combination which can either be operated individually or simultaneously as required by the heat load on the storage pool. Operating both trains together is not an undesirable condition.

Question 5

"If there are credible circumstances which would lower the cooling capacity of the spent fuel cooling system, and if the spent fuel load further contributed to this problem, then your quantitative criteria for a reactor shutdown must include this information."

Response

A loss of a single cooling pump or heat exchanger is a credible circumstance affecting the cooling capacity of the spent fuel storage pool cooling system. Please refer to the response to question 5 of Enclosure 1 for information related to this occurrence.

In the unlikely event of a total loss of the normal spent fuel storage pool cooling systems, a reliable backup source of cooling water is available to pump water directly into the pool. This emergency system would provide temporary protection until repair of the normal cooling systems.

Question 6

"If there are credible circumstance which would require you to examine the mechanisms within the reactor pressure vessel, then a reactor shutdown would be required if the full core could not be emptied into the spent fuel storage pool. Your quantitative criteria should take these circumstances into account."

Response

Should circumstances require an examination of mechanisms within the reactor pressure vessel, the reactor must be brought to and maintained in the shutdown condition. Removal of fuel, if required, could then proceed to permit the postulated examination. If the fuel could not, in total or in part, be transferred to the spent fuel storage pool, the fuel would remain inside the reactor pressure vessel until such time as

additional storage space is available. Since the reactor pressure vessel is supplied by several different and redundant coolant sypply systems, the reactor vessel is the best place to store the fuel assemblies.