

AUG 13 1971

Docket No. 50-220

Niagara Mohawk Power Corporation  
ATTN: Mr. Thomas J. Brosnan  
Vice President and  
Chief Engineer  
300 Erie Boulevard West  
Syracuse, New York 13202

Gentlemen:

Your letter dated July 27, 1971, informed us that you are scheduling a partial refueling of the Nine Mile Point (NMP) reactor on September 19, 1971. The proposed reload fuel will contain a burnable poison, gadolinium oxide ( $Gd_2O_3$ ), mixed with the  $UO_2$ . Based on our review of the information presented, we consider that the use of the proposed fuel may involve an unreviewed safety question as defined in Section 50.59 of 10 CFR Part 50 and that operation with the proposed fuel requires authorization by the Commission. To continue our review and evaluation of the proposed refueling at NMP, the following additional information is required:

1. Describe your evaluation of the consequences of possible loading errors associated with the proposed refueling. Consider errors associated with the multiple enrichments, the gadolinium poison, and the exchange of fuel rods of an assembly, and consider possible errors in locating and positioning an assembly in the core in connection with poison curtain position.
2. In view of the fuel failures experienced to date, describe measures and programs you are employing or propose to institute to provide improved quality of gadolinium-bearing fuel as fabricated and an augmented surveillance of the core fuel during operations.
3. Your July 27, 1971 letter stated that the performance of gadolinium-containing fuel has been demonstrated successfully in other BWRs and that we have reviewed such fuel for several other facilities. Clarify your

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references to other dockets to indicate the information that is relevant to the proposed NMP operation with gadolinium-bearing fuel as regards gadolinium content, margins to fuel melting and clad damage during steady-state and transient operations, including uncertainties in power distribution as a function of burnup, and similarly the margin-to-fuel damage for control-rod-drop accident conditions.

4. Describe in detail the effect of the proposed fuel on analytical results obtained from the study you are performing in response to our letter to you dated July 22, 1971, concerning the AEC interim acceptance criteria for the performance of emergency core cooling systems.

Please contact us if you desire additional discussion or clarification of the information requested.

Sincerely,

Original signed by  
Peter A. Morris

Peter A. Morris, Director  
Division of Reactor Licensing

cc: Arvin E. Upton, Esquire  
LeBoeuf, Lamb, Leiby & MacRae  
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*Informed Rhode by phone 8/13/71*

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