

July 28, 1983

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Docket No. 50-220

Mr. G. K. Rhode  
Senior Vice President  
Niagara Mohawk Power Corporation  
300 Erie Boulevard West  
Syracuse, New York 13202

Dear Mr. Rhode:

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION -  
SPENT FUEL POOL EXPANSION - STRUCTURAL TOPICS

Re: Nine Mile Point Nuclear Station, Unit No. 1

Reference is made to your submittal dated June 24, 1983 which provided information on your structural analyses of the spent fuel storage racks and spent fuel pool supporting your requested expansion in spent fuel storage capacity.

The information was reviewed by our staff and the issues discussed with you in our meeting of July 25, 1983. We find the items identified in the enclosure are required to complete our review.

In order to support our review schedule for this activity, you are requested to provide your response to the NRC by August 8, 1983. This schedule has been discussed with your licensing staff and found to be mutually acceptable.

The reporting and/or recordkeeping requirements contained in this letter affect fewer than ten respondents; therefore, OMB clearance is not required under P.L. 96-511.

Sincerely,

Original signed by VLRooney for/

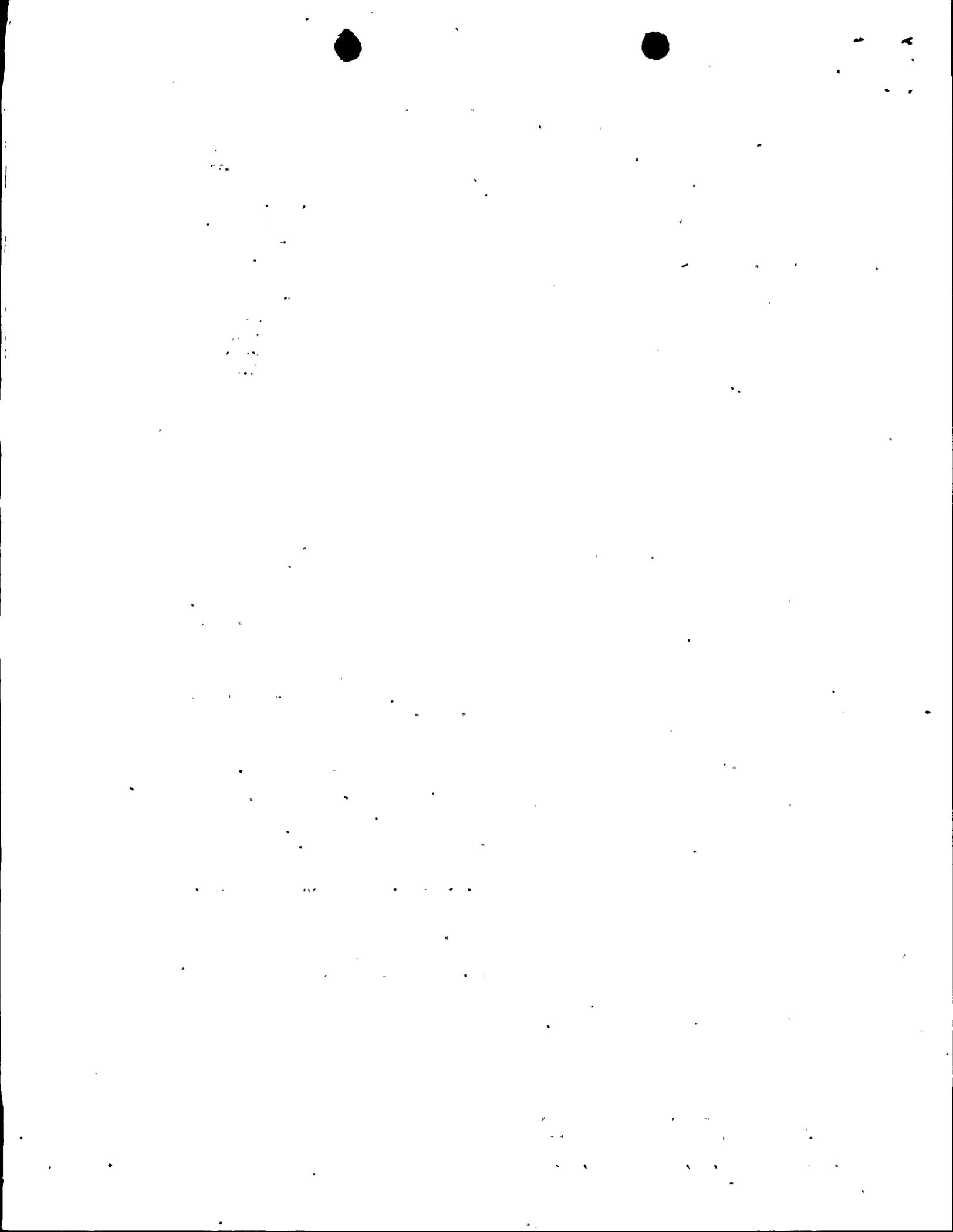
Domenic B. Vassallo, Chief  
Operating Reactors Branch #2  
Division of Licensing

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Enclosure:  
As stated

cc w/enclosure:  
See next page

OFFICE	ORB#2:DL	ORB#2:DL	ORB#2:DL				
SURNAME	SNorris:ajs	RHermann	DVassallo				
DATE	07/28/83	07/27/83	07/26/83				



Mr. G. K. Rhode  
Niagara Mohawk Power Corporation  
Nine Mile Point Nuclear Station, Unit No. 1

cc:

Troy B. Conner, Jr., Esq.  
Conner & Wetterhahn  
Suite 1050  
1747 Pennsylvania Ave., NW  
Washington, D.C. 20006

Director,  
Technological Development Programs  
State of New York  
Energy Office  
Swan Street Building  
CORE 1 - Second Floor  
Empire State Plaza  
Albany, New York 12223

Mr. Robert P. Jones, Supervisor  
Town of Scriba  
R. D. #4  
Oswego, New York 13126

Niagara Mohawk Power Corporation  
ATTN: Mr. Thomas Perkins  
Plant Superintendent  
Nine Mile Point Nuclear Station  
P.O. Box 32  
Lycoming, New York 13093

U.S. Environmental Protection Agency  
Region II Office  
Regional Radiation Representative  
26 Federal Plaza  
New York, New York 10007

Resident Inspector  
c/o U.S. NRC  
P. O. Box 126  
Lycoming, New York 13093

John W. Keib, Esquire  
Niagara Mohawk Power Corporation  
300 Erie Boulevard West  
Syracuse, New York 13202

Regional Administrator, Region I  
U.S. Nuclear Regulatory Commission  
631 Park Avenue  
King of Prussia, PA 19406

Mr. Jay Dunkleberger  
Division of Policy Analysis and Planning  
New York State Energy Office  
Agency Building 2, Empire State Plaza  
Albany, New York 12223



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## REQUEST FOR ADDITIONAL INFORMATION

## NINE MILE POINT SPENT FUEL POOL

## EXPANSION - STRUCTURAL ASPECTS

1. Referring to paragraph 4.2 (Base Input Records), page 13 of the enclosure to your letter of June 24, 1983 (entitled "Supplemental Submittal"): Do the time histories used for the design of the racks and the analysis of the pool produce response spectra which envelop and design floor response spectra for the Nine Mile Point 1 spent fuel pool at the proper elevation?
2. Referring to the same document as noted in item 2, above, paragraph 5.2, sub-paragraph 2, page 18: the justification statement for not using the load factors of the SRP is not adequate. All that is stated is that if the factors are not reduced, the structures will be overstressed. Provide a proper justification or increase the loads.
3. Referring to the same document as noted in item 2, above, paragraph 5.3, page 20: Provide a justification for using level D acceptance criteria for the pool liner. By definition, level D service limits allow gross deformations. Such deformations could result in failure of the liner which is a key component of the seismic Category I structure. What is the basis for the statement that the "liner integrity will remain" since buckling is postulated?
4. Referring to the same documents as noted in item 2 above, paragraph 5.2, page 17, 3rd paragraph: the case drop protection system is classified as both dead load and live load. Please clarify, or correct this apparent discrepancy.
5. Referring to U.S. Tool and Die Co. report numbered 8202-00-0109 dated May 20, 1983, revision 2, section 5.2, pages 5 and 6: the analysis of base plate loads is questioned because:
  - a. It is understood that the racks were considered "rigid" for the purpose of determining a seismic load. This practice should be followed consistently and not abandoned in an effort to show reduced floor loads. The analysis on page 5 appears to be inconsistent and additional explanation is required.
  - b. Although the bearing area on page 6 is very conservatively arrived at, the bearing stress in the concrete is considered unacceptable by any reasonable code interpretation. Additional explanation and justification must be provided.



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6. Referring to the same document as noted in item 5 above, table 1.2, Stress Summary: What are the tabulated values for "Pool Floor Load at Pedestal" due to SSE?"
7. Referring to U.S. Tool and Die Co. report numbered 8202-00-0215 dated May, 1983, Volume 1 of 3, sheet 7: buckling of the pool liner is postulated as a worst case condition. Will such buckling damage the liner and cause it to leak? Provide the analytical basis for your answer.
8. Referring to the same document as noted in item 7 above, sheet 33: provide an explanation for the use of two factors 1.7 and 1.15 for OBE loads in the table. Where and why is each factor used?
9. Referring to the same document as noted in item 7 above, sheet 98: the analysis indicates that the factor-of-safety against cask tipping is very close to one. NRC staff criteria is that the factor of safety against tipping should be at least 1.1 for this type of analysis. Justify the discrepancy.
10. Referring to the same document as noted in item 7 above, page 71, it is stated that the reaction of the rack impacting the pool floor is less than the static reaction of the reaction on the other side of the rack as it tips up. Shouldn't the impact load and the seismic reaction be directly added? Please furnish a detailed explanation including a numerical summary of results of the non-linear analysis.
11. Referring to the same document as noted in item 7 above, page 136: the statement at the bottom of the page is considered to be unacceptable. Essentially, the author is saying that a certain criteria will be used until it cannot be met and then the criteria will be changed. Also, it is not understood why the SRSS result was assigned a sign, i.e., for purposes of determining load the sign is positive and directly additive to other effective loads. Additionally, the statements conflict with those made on sheet 5. Provide a complete justification for the procedure used and include an assessment of how it has affected the results of the analysis.
12. Referring to U.S. Tool and Die Report numbered DDI-TR-82-120-2, dated May 1983, "Volume II, Component Structural Evaluations, page 102, provide an expanded explanation of why only positive components were used in the SRSS.
13. Why were both ACI 349-76 and ACI 318-71 used for the analysis of the pool? Where did your criteria deviate from the requirements of ACI 349-76? Provide a detailed discussion.

