

PDR

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

MONTICELLO INTERROGATORIES - TAR ORB-2-115

Plant Name: Monticello  
Docket No. 50-263  
Project Manager: James J. Shea  
Branch Code: ORB-2

Attached is a written response to Interrogatory No. [10a] submitted by the  
Counsel for the Minnesota Pollution Control Agency.

Orig. [unclear]  
[unclear]

R. R. Maccary, Assistant Director  
for Engineering  
Directorate of Licensing

Enclosure:  
As Stated

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DATE	8/19/74	8/19/74	8/19/74			

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Interrogatory 10a. "Provide a detailed analysis of the results of a rupture of the reactor pressure vessel at Monticello."

Response: We have reviewed all factors contributing to the structural integrity of the reactor vessel and we conclude that the probability of a disruptive failure\* of a reactor vessel is sufficiently low to make it not necessary to consider potential vessel failure.

The probability of a disruptive failure event occurring in a reactor vessel is estimated in the report WASH-1318\*\* and is based on the following considerations:

- a. Reactor vessels are designed and constructed in accordance with the rules of ASME Code, Section III.
- b. Reactor vessels are operated in accordance with the limitations specified in AEC License Technical Specifications.

\*"Disruptive failure" is a breaching of the vessel by rupture of one of its pressure-containing components (e.g., shell, head, or nozzle) or by failure of a significant fraction of closure bolts, accompanied by rapid release of a large volume of the contained pressurized fluid.

\*\*The Technical Report WASH-1318, "Analysis of Pressure Vessel Statistics from Fossil-Fueled Power Plant Service and Assessment of Reactor Vessel Reliability in Nuclear Power Service," May 1974.

- c. Reactor vessels are subjected to the preservice and inservice inspections in accordance with the rules of ASME Code, Section XI.
- d. Reactor vessels are provided with a higher degree of protection by virtue of design measures, overpressure devices, and operational control procedures from conditions that could impose, during the vessel's service lifetime, loadings and stresses in excess of those considered in the design.

Utilizing the conservative base of the failure probability range derived for non-nuclear vessels, and a conservatively estimated factor of improvement resulting from the superior quality level achieved in the design and construction of nuclear reactor vessels, and from the recurrent examinations performed during the service lifetime of nuclear reactor vessels, the Regulatory staff concludes that the upper limit (99% confidence) probability of a "disruptive failure" event occurring in any one nuclear reactor vessel during any service year falls within the range of  $10^{-6}$  to  $10^{-7}$ .