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Mr. Dennis L. Ziemann

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Ltr. re our 12/14/76 ltr and their 9/7/76
ltr...furnishing response to questions on
Single Recirculation Pump Operation...

(2-P)

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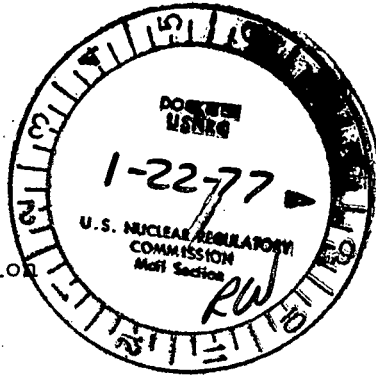
NORTHERN STATES POWER COMPANY

MINNEAPOLIS, MINNESOTA 55407

Regulatory Docket File

January 19, 1977

Mr Dennis L Ziemann, Chief
Operating Reactors Branch #2
Division of Operating Reactors
U S Nuclear Regulatory Commission
Washington, DC 20555



Dear Mr Ziemann:

MONTICELLO NUCLEAR GENERATING PLANT
Docket No. 50-263 License No. DPR-22

Response to 12/14/76 Questions on
Single Recirculation Pump Operation

This letter is in response to your December 14, 1976 request for additional information regarding our September 7, 1976 submittal on single recirculation pump operation with the equalizer valve closed. The nature of the questions suggests that the review of our submittal has been expanded beyond ECCS considerations to involve areas which have been previously analyzed.

The title of the report accompanying our September 7, 1976 letter, "License Amendment Submittal for Single-Loop Operation", is misleading. Single-Loop Operation is not being newly licensed. It was a design feature licensed with the plant and verified by the startup test program. It was an allowable mode of operation until issuance of an amendment to the Monticello license on October 30, 1975. The NRC safety evaluation of our August 4, 1975 license amendment request stated the following: "An evaluation was not provided for ECCS performance during reactor operation with one recirculation loop out of service. Therefore, continuous operation in excess of 24 hours under such conditions will not be permitted until the necessary analyses have been performed, evaluated and determined acceptable." Our September 7, 1976 submittal was prepared to provide the ECCS performance information that you requested.

Your recent questions and the respective answers are as follows:

1. The idle loop startup transient has been analyzed in your FSAR from an initial power of 60%. In NEDO-21252, Page 4-1, it states that "operation with one recirculation loop results in a maximum power output which is 20 to 30% below that from (sic) which can be attained for two-pump operation." Is 60% power the most severe initial power for the idle loop startup transient analysis? If not, revise the analysis using the most severe initial power level.

NORTHERN STATES POWER COMPANY

Mr Dennis L Ziemann

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Answer #1 - The most severe case of the idle loop startup transient is that case where initial power is at the highest level where a scram does not occur during the transient. That threshold corresponds to 60% power. It is true that greater than 60% power can be achieved with single-loop operation; however, an idle loop startup transient would then result in a neutron flux scram and less severe results.

2. What effect will reverse flow have on jet pump vibration, specifically risers, supports, and baffle plates?
3. What effect will asymmetric flow have on instrument housings located in the lower plenum?

Answer #2 and #3 - Single recirculation pump trips were included in the Monticello startup test program. Vibration transducers mounted on jet pumps, incore instrument guide tubes in the lower plenum area and numerous other locations inside the reactor vessel indicated movement during flow reversals and asymmetric flows. Measurements fell within pre-established limiting criteria. Results are reported in NEDO-10563. The Monticello results were considered confirmatory to and compatible with vibration tests at similar facilities; the results of all these tests have undergone extensive AEC review in the past.

We trust that this additional information will allow completion of our September 7, 1976 amendment request.

Yours very truly,



L O Mayer, PE
Manager of Nuclear Support Services

LOM/ak

cc: J G Keppler
G Charnoff
MPCA
Attn: J W Ferman