

FROM: Northern States Power Company
 Minneapolis, Minnesota 55401
 R.O. Duncanson, Jr.

DATE OF DOCUMENT: May 12, 1971	DATE RECEIVED: May 17, 1971	NO.: 234U	
LTR. X	MEMO:	REPORT:	OTHER:

TO: Dr. Peter A. Morris

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NO ACTION NECESSARY <input type="checkbox"/>	COMMENT <input type="checkbox"/>	BY:

FILE CODE: 50-263

DESCRIPTION: (Must Be Unclassified)
Ltr reporting on 5-3-71 of an occurrence in which the high flow sensors for main steam line B have been inoperable during startup test programs to the 50% power level.....

REFERRED TO	DATE	RECEIVED BY	DATE
Knuth w/9 cys for ACTION	5-17-71		
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ENCLOSURES:

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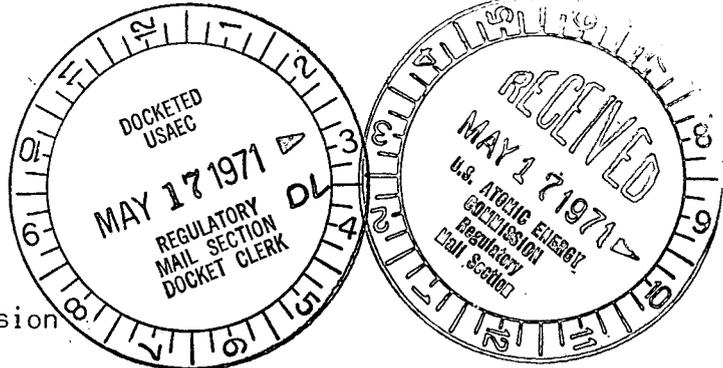
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NORTHERN STATES POWER COMPANY

Minneapolis, Minnesota 55401

May 12, 1971

Dr. Peter A. Morris, Director
Division of Reactor Licensing
United States Atomic Energy Commission
Washington, D.C. 20545



Dear Dr. Morris:

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

Inoperability of Main Steam Line
High Flow Sensors

It has been determined that the high flow sensors for main steam line B have been inoperable during the startup test program to the 50% power level. We are reporting this occurrence in accordance with section 6.6.B of Appendix A, Technical Specifications, of the Provisional Operating License DPR-22. The Region III Compliance office has been previously notified in accordance with section 6.6.A of the Technical Specifications.

Summary Description of Occurrence

On May 3, 1971, while operating at 50% power, it was discovered that the high and low pressure sensing lines for the steam flow instruments associated with main steam line B were connected in reverse order. Thus, four of the high steam flow sensors which initiate main steam isolation were inoperable. The main steam isolation valves for steam line B were immediately closed and the instrument piping was corrected.

Following correction of the reversed sensing lines it was found that the differential pressure being sensed by all of the steam flow instruments is apparently less than that predicted by the flow nozzle calibration curve. The setpoints of all 16 high flow sensors in the main steam isolation logic were immediately lowered to assure that they are within the Technical Specification limits. Investigation of this discrepancy is currently in progress.

Detailed Description and Analysis

During startup testing at 25% power the total steam flow indication was found to be low and the indicated individual steam line flows were unsteady and unequal. At that time, the problem was attributed to instrument calibration discrepancies and the fact that the flow was well below 20% of full scale. Prior to operation at higher power levels the instrumentation was recalibrated.

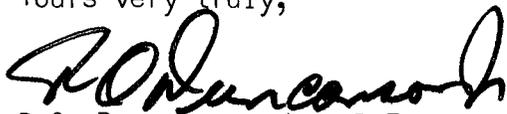
During the initial rise to 50% power on April 28, 1971, the steam flow meter for steam line B indicated zero flow. That evening the reactor was brought to the cold shutdown condition for operator licensing examinations and scheduled maintenance. Investigation during the outage revealed a blown fuse in the flow instrumentation. The fuse was replaced prior to returning to power operation.

On May 3, 1971, the reactor was again at 50% power and it was found that the B steam line flow meter indication was downscale. The four high steam flow differential pressure indicating switches (DPIS-2-117A, B, C, D) for steam line B were found to be indicating a negative differential. It was concluded that the high and low pressure sensing lines from the B steam line were connected in reverse order. Thus, the four high steam flow sensors had been inoperable. The main steam isolation valves for the B steam line were immediately closed. The instrument piping was corrected, the high steam flow sensors were made operable, and the isolation valves were reopened within approximately six hours.

Following correction of the reversed sensing lines, the flow indication for all four steam lines were found to be reasonably equal. However, the total indicated steam flow was approximately 2,400,000 lb/hr while the actual steam flow, based on feedwater flow and confirmed by gross electrical power output, was about 3,100,000 lb/hr. The differential pressure at the various flow instruments was found to average about 5 psid. According to the flow nozzle calibration curve approximately 12.5 psid would be expected at steam flows corresponding to 50% power. Immediately following this discovery the setpoints of the high flow sensors were reduced from 122 psid (equivalent to 140% of rated flow based on the flow nozzle calibration curve) to 40 psid. The 40 psid setting should assure that the Technical Specification limit of 140% of rated flow is not exceeded.

Investigation of the discrepancy is currently in progress. Preliminary checks of flow nozzle design data and the physical installation have not indicated any error. All of the flow instruments are being recalibrated with special attention to the lower quarter of the scale range. Additional ΔP measurements at various flows will be obtained as the startup test program progresses.

Yours very truly,



R.O. Duncanson, Jr., P.E.
Gen. Supt. of Power Plants - Mechanical
Chairman-Monticello Safety Audit Committee

ROD/MHC/caf

