

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

DATE OF DOCUMENT: April 2, 1971	DATE RECEIVED April 5, 1971	NO.:
LTR.	MEMO:	PORT:
X		OTHER:

TO:

Dr. Peter A. Morris

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

CLASSIF: **U** POST OFFICE REG. NO:

FILE CODE: **50-263**

DESCRIPTION: (Must Be Unclassified)
Ltr reporting an unusual occurrence when an error in the withdrawal sequence of control rods occurred on 3-3-71... trans the following:

REFERRED TO	DATE	RECEIVED BY	DATE
Knuth w/9 cys for ACTION	4-6-71		

ENCLOSURES:
REPORT - Omission of One Rod Group When Withdrawing Control Rods.....

(3 cys encl rec'd)

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NORTHERN STATES POWER COMPANY

Minneapolis, Minnesota 55401

April 2, 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 E-5979
Docket No. 50-263 License No. DPR-22

Omission of One Rod Group When
Withdrawing Control Rods

An error in the withdrawal sequence of control rods occurred at the Monticello Nuclear Generating Plant on March 3, 1971 during low power reactor testing. We interpret this occurrence to be reportable to your office in accordance with Section 6.6.C.4 of Appendix A, Technical Specifications, of the Provisional Operating License DPR-22. The Region III Compliance Office has been previously notified of the occurrence.

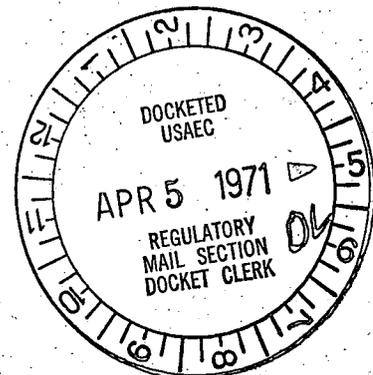
An on-site Unusual Occurrence investigation of the occurrence has been completed and the written report has been reviewed by the site Operations Committee. The attached report, "Omission of One Rod Group When Withdrawing Control Rods", describes the occurrence and summarizes the actions taken to prevent future similar occurrences.

Yours very truly,

A handwritten signature in cursive script, appearing to read "R.O. Duncanson, Jr.".

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

ROD/CEL/caf



Handwritten initials, possibly "DL", in the bottom right corner.

March 18, 1971

Subject: Omission of One Rod Group When Withdrawing Control Rods

1. Summary Description of the Occurrence

Received w/ LR Bated 4-2-71

On March 3, 1971, control rods were being withdrawn from the reactor to increase power while the Rod Worth Minimizer (RWM) was bypassed. One group of four rods remained partially inserted in the core out of sequence with the specified rod withdrawal program. The situation was undetected for approximately five hours and was corrected within approximately eight hours. Since the rods were peripheral rods having very low worth, there were no specific results from this occurrence.

2. Summary of Plant Conditions

During the course of the occurrence, the reactor was operated in the range of 15 to 200 MWT to provide the necessary conditions for startup testing. Reactor pressure was at 1000 psig, the reactor water level was normal at +37 inches, and steam was being dumped to the condenser through the bypass valves.

3. Account of the Occurrence

The following sequence of events occurred on March 3, 1971.

- 0137 Reactor power was reduced by inserting control rod groups 17, 16, 15 and 14 to their group insert limits.
- 0410 The RWM was bypassed for control rod scram testing. (NOTE: This was necessary because special rod patterns were being used to allow the withdrawal of control rods for scram testing. The special rod patterns were specified by test engineers and the rod programming was being verified by a knowledgeable employee.)
- 0645 The RWM was returned to service on completion of the scram testing.
- 0700 At the shift change time, an operator who was beginning his shift assignment made the following reactor log entry, "All CR groups 1-14 at normal 'A' sequence positions".
- 0900 The RWM was bypassed to allow friction testing of control rods. (NOTE: Unrelated to the developing occurrence, the Engineer, Nuclear, was investigating previously reported RWM problems. Following the completion of the control rod friction testing, the RWM remained out of service for trouble shooting of the reported problems.)
- 0950 An operator began increasing power by withdrawing group 15 rods. A senior licensed engineer was verifying the rod withdrawal sequence.

- 1500 The on-duty shift, in the process of verifying the rod pattern, discovered the rod withdrawal sequence error. The rod group positions were correctly recorded as "Grps 1-13 at specified positions, Grps 15-20 at specified positions" and the information was reported to the Engineer, Nuclear. The attached figure shows the location of the control rod groups involved.
- 1747 Control rod groups 15-20 were inserted and group 14 rods withdrawn. The RWM was returned to service and was functioning properly. (NOTE: At the time of the discovery of the sequencing error, heat balance data was being taken and nuclear instrumentation calibrations were in progress. It was determined that this work could be completed prior to correcting the rod sequence error.)

4. Analysis of the Occurrence

Three factors contributed to the cause of this occurrence. First, an incorrect entry was written in the log. Secondly, an operator failed to verify the rod pattern prior to withdrawing rods resulting in a rod withdrawal sequence error. Thirdly, the individual assigned to follow the rod sequencing while the RWM was bypassed, failed to verify the existing rod pattern prior to the withdrawal of out-of-sequence rods.

Administrative procedures were not adequate to prevent a deviation from the planned rod sequence.

5. Actions Taken to Prevent Future Similar Occurrences

The Operations Committee has reviewed the occurrence report and has taken the following actions to prevent future similar occurrences.

- a. All required actions must be taken promptly, when necessary, to have the Rod Worth Minimizer available during all reactor operations below 10% power.
- b. The following administrative actions will be formally stated through the issuance of a Volume F memo (to amend the Operations Manual procedures):
 - 1) When control rods are being moved and the RWM is bypassed, the name of the operator at the reactor controls and the name of the person assigned to verify the rod sequence must be entered in the reactor log.
 - 2) Each shift must verify the correct rod pattern when they come on duty and enter in the reactor log that the correct rod pattern has been verified.
- c. The Engineer, Nuclear will periodically audit the control room records to verify that proper procedures are being followed.

