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Monticello Nuclear Generating Plant
2807 W County Road 75
Monticello, MN 55362

January 26, 2012

L-MT-12-007
10 CFR 50.73

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-001

Monticello Nuclear Generating Plant
Docket 50-263
Renewed Facility Operating License No. DPR-22

LER 2011-010 "Rod Worth Minimizer Bypassed During Startup"

A Licensee Event Report (LER) for this occurrence is attached.

Summary of Commitments

This letter contains no new commitments and no revisions to existing commitments.

Timothy J. O'Connor
Site Vice-President
Monticello Nuclear Generating Plant
Northern States Power Company-Minnesota

Enclosure

cc: Regional Administrator, Region III, USNRC
Project Manager, Monticello Nuclear Generating Plant, USNRC
Resident Inspector, Monticello Nuclear Generating Plant, USNRC

NRC FORM 366 (10-2010) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 10/31/2013

Estimated burden per response to comply with this mandatory information collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA/Privacy Section (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects.resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

# LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

| 1. FACILITY NAME | 2. DOCKET NUMBER | 3. PAGE |
|---|---|---|
| Monticello Nuclear Generating Plant | 05000 - 263 | 1 OF 3 |

**4. TITLE**

Rod Worth Minimizer Bypassed During Startup

| 5. EVENT DATE | | | 6. LER NUMBER | | | 7. REPORT DATE | | | 8. OTHER FACILITIES INVOLVED | |
|---|---|---|---|---|---|---|---|---|---|---|
| MONTH | DAY | YEAR | YEAR | SEQUENTIAL NUMBER | REV NO | MONTH | DAY | YEAR | FACILITY NAME | DOCKET NUMBER |
| | | | | | | | | | | 05000 |
| 11 | 27 | 2011 | 2011 | - 010 - | 00 | 01 | 26 | 2012 | FACILITY NAME | DOCKET NUMBER 05000 |

**9. OPERATING MODE**

2

**10. POWER LEVEL**

000

**11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §:** (Check all that apply)

| | | | |
|---|---|---|---|
| ☐ 20.2201(b) | ☐ 20.2203(a)(3)(i) | ☐ 50.73(a)(2)(i)(C) | ☐ 50.73(a)(2)(vii) |
| ☐ 20.2201(d) | ☐ 20.2203(a)(3)(ii) | ☐ 50.73(a)(2)(ii)(A) | ☐ 50.73(a)(2)(viii)(A) |
| ☐ 20.2203(a)(1) | ☐ 20.2203(a)(4) | ☐ 50.73(a)(2)(ii)(B) | ☐ 50.73(a)(2)(viii)(B) |
| ☐ 20.2203(a)(2)(i) | ☐ 50.36(c)(1)(i)(A) | ☐ 50.73(a)(2)(iii) | ☐ 50.73(a)(2)(ix)(A) |
| ☐ 20.2203(a)(2)(ii) | ☐ 50.36(c)(1)(ii)(A) | ☐ 50.73(a)(2)(iv)(A) | ☐ 50.73(a)(2)(x) |
| ☐ 20.2203(a)(2)(iii) | ☐ 50.36(c)(2) | ☐ 50.73(a)(2)(v)(A) | ☐ 73.71(a)(4) |
| ☐ 20.2203(a)(2)(iv) | ☐ 50.46(a)(3)(ii) | ☐ 50.73(a)(2)(v)(B) | ☐ 73.71(a)(5) |
| ☐ 20.2203(a)(2)(v) | ☐ 50.73(a)(2)(i)(A) | ☐ 50.73(a)(2)(v)(C) | ☐ OTHER Specify in Abstract below or in NRC Form 366A |
| ☐ 20.2203(a)(2)(vi) | ☒ 50.73(a)(2)(i)(B) | ☒ 50.73(a)(2)(v)(D) | |

**12. LICENSEE CONTACT FOR THIS LER**

| NAME | TELEPHONE NUMBER (*Include Area Code*) |
|---|---|
| Carrie Fosaaen, Licensing Engineer | 763-295-1357 |

**13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT**

| CAUSE | SYSTEM | COMPONENT | MANU-FACTURER | REPORTABLE TO EPIX | CAUSE | SYSTEM | COMPONENT | MANU-FACTURER | REPORTABLE TO EPIX |
|---|---|---|---|---|---|---|---|---|---|
| N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

**14. SUPPLEMENTAL REPORT EXPECTED**

☐ YES (If yes, complete 15. EXPECTED SUBMISSION DATE) ☒ NO

**15. EXPECTED SUBMISSION DATE**

| MONTH | DAY | YEAR |
|---|---|---|
| N/A | N/A | N/A |

**ABSTRACT** (*Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines*)

On November 27, 2011, while performing the Rod Worth Minimizer (RWM) Operability Test as part of startup activities, it was discovered that the RWM control switch was in Bypass. With the control switch in the Bypass position, the RWM was inoperable and did not enforce the pre-determined control rod withdrawal sequence. The RWM control switch was restored to the Operate position and the RWM was verified to be operable.

The apparent cause was determined to be the crew failed to precisely identify the sequence of surveillances/procedures required to be completed, prior to the mode change. The pre-job brief was inadequate in that the specific sequence and details were not discussed and the licensed operators on duty failed to identify that the RWM configuration did not support the mode change. Additionally, control room indications available to the operators were not properly utilized to prevent the out of sequence control rod withdrawal.

EVENT DESCRIPTION

Prior to the event, Monticello Nuclear Generating Plant was in Mode 4 (Cold Shutdown). Reactor temperature was 104 F and pressure 0 PSIG.

On November 25, 2011 at 1026 CST, the Rod Worth Minimizer (RWM) Operability Test was halted at the step requiring the Reactor Mode Switch to be placed in Startup/ Hot Standby, which would not occur until the Startup Procedure directed a transfer to Startup/ Hot Standby. On November 26, the plant was in proper configuration for startup, but delays were encountered as a result of Turbine Control System and Reactor Water Clean Up [CE] (RWCU) equipment issues. The RWCU issues resulted in the Control Rod Drive [AA] (CRD) system being shutdown and a Reactor Mode Switch change from Refuel to the Shutdown position.

On November 27, at approximately 0443 CST, after repairs were completed to the RWCU system and the CRD system started, the Control Rod Drive Exercise procedure was initiated. In this procedure, the RWM is placed in Bypass so control rods [ROD] can be withdrawn. Control rods are typically exercised continuously until startup. The last step in this procedure places the RWM switch to Operate, but was not completed until after the event occurred.

The operating crew on November 27 began validating readiness for plant startup assuming certain conditions were met as specified by those procedures that had been completed and those in progress. An infrequent test and evolution briefing was performed and Just in Time Training (JITT) for startup was completed. The JITT did not cover the mode change, but rather began with control rod withdrawals to criticality.

Following Reactor Mode Change to Startup, the operating crew resumed the RWM Operability Test, per the stated procedure. Operators attempted to move a Control Rod out of sequence as directed by the procedure to verify RWM operability. Performance of the procedure with the RWM switch in Bypass failed to enforce a rod block and a control rod was allowed to be withdrawn. Limiting Condition for Operation 3.3.2.1 – Control Rod Block Instrumentation was not met from the time of the mode change until the RWM switch was placed in Operate.

EVENT ANALYSIS

This condition is being reported in accordance with 10 CFR 50.73(a)(2)(v)(D) – Event or Condition that Could Have Prevented Fulfillment of a Safety Function and 10 CFR 50.73(a)(2)(i)(B) – Operation or Condition Prohibited by Technical Specifications. This event is considered a safety system functional failure.

Procedures governing the mode change were not written to ensure consistent successful performance. Control rods are exercised to ensure they are properly vented prior to manipulating for startup. Special Technical Specification 3.10.4 is invoked and the Mode Switch is taken from Shutdown to Refuel to allow control rod exercising. Rod Exercising was performed until the Mode Switch was taken to Startup. The procedure that drives placing the Mode Switch to Startup is the Startup Procedure. Control Rod Exercising should be closed out prior to taking the Reactor Mode Switch to Startup and then testing the RWM Operability.

SAFETY SIGNIFICANCE

The health and safety of the public was maintained at all times. The Rod Worth Minimizer (RWM) is a system which enforces a predetermined rod withdrawal or insertion sequence during operation below 10% reactor

power. The objective of the Rod Worth Minimizer Operability test is to demonstrate operability of the RWM. Performance of the test on November 27 revealed that the RWM switch was not in the correct position, and the RWM was inoperable. Additionally, had the RWM been found to be inoperable once the switch was placed in Operate, a second licensed operator could have been used to verify compliance with the prescribed control rod movements.

CAUSE

The apparent cause was determined to be the crew failed to precisely identify the sequence of surveillances/procedures required to be completed, prior to the mode change. The pre-job brief was inadequate in that the specific sequence and details were not discussed, and the licensed operators on duty failed to identify that the RWM configuration did not support the mode change. Additionally, control room indications available to the operators were not properly utilized to prevent the out of sequence control rod withdrawal.

The contributing cause is procedures governing the mode change were not written to ensure consistent successful performance. There was no step to verify the Control Rod Drive Exercise procedure was completed prior to performing the mode change. The Rod Worth Minimizer Operability Test procedure was revised to include additional detail to eliminate error traps such as knowledge-based steps. C.1 Startup procedure was enhanced to aid in mode change.

CORRECTIVE ACTION

Immediate actions:

Upon recognizing error, the crew stopped, assessed the conditions, and placed the plant in a safe condition.

Non-immediate actions:

1. The Site Vice President and Chief Nuclear Officer provided oversight of the investigation and corrective actions, including the reinstatement of license holder duties.
2. Revise Procedure 0212 Rod Worth Minimizer Operability Test to include additional detail to eliminate error traps such as knowledge-based steps.
3. C.1 Startup procedure has been improved to enhance the mode change process.

PREVIOUS SIMILAR EVENTS

LER 2010-006 "Mode Change Made with PCIVs Inoperable". The Primary Containment Isolation Valve (PCIV) main steam line drain valves were de-energized in the Open position to establish a reactor vent path during a short outage. Document barriers for PCIV status were missed, and the duty Operations crew failed to recognize that these valves needed to be restored prior to transitioning to Mode 2.

ADDITIONAL INFORMATION

Energy industry identification system (EIIS) codes are identified in the text within brackets [xx].