

**Enclosure 3 Contains Security-Related Information – Withhold from  
Public Disclosure in Accordance with 10CFR 2.390.**



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L-PI-08-101  
EA-08-273  
EA-08-272

U S Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555-0001

Prairie Island Nuclear Generating Plant Units 1 and 2  
Dockets 50-282 and 50-306  
License Nos. DPR-42 and DPR-60

Northern States Power Company, a Minnesota Corporation (NSPM), Position on Two  
Apparent Violations and Preliminary White Findings, EA-08-272 and EA-08-273

- References:
- 1) Letter from NRC to Mr. Michael D. Wadley, "Prairie Island Nuclear Generating Plant, Units 1 and 2 – NRC Integrated Inspection Report 05000282/2008004; 05000306/2008004 Preliminary White Finding", dated November 7, 2008.
  - 2) Letter from NRC to Mr. Michael D. Wadley, "Prairie Island Nuclear Generating Plant – NRC Special Inspection Report 05000282/2008008; 05000306;2008008, Preliminary White Finding", dated November 7, 2008.

This letter submits NSPM's position on the two apparent violations as identified in References 1 and 2. NSPM's detailed evaluations (Enclosure 3) indicate both apparent violations are of very low safety significance. The conclusions of the evaluations are described below.

The first apparent violation of Technical Specification (TS) requirements occurred on March 23, 2008, during the test of the auxiliary feedwater system using surveillance procedure (SP) 1103, 11 Turbine-Driven Auxiliary Feedwater Pump Once Every Refueling Shutdown Flow Test, when the turbine outboard bearing temperature reached 220°F and will be subsequently referred to as Issue 1. NSPM concurs that this is a violation of TS requirements.

IEP  
NRC

The second apparent violation of TS requirements occurred on July 31, 2008, when the Prairie Island Nuclear Generating Plant (PINGP) Unit 1 tripped due to a spurious overtemperature delta temperature (OTΔT) signal on the reactor protection system red channel concurrent with planned testing on the reactor protection system yellow channel. Following the reactor trip, the 11 Turbine-Driven (TD) Auxiliary Feedwater Pump (AFWP) started as required, then stopped 42 seconds later due to a low discharge pressure trip. This apparent violation will be subsequently referred to as Issue 2. NSPM concurs that this is a violation of TS requirements.

Enclosure 1 to this letter provides a synopsis of NSPM's determination of the cause, and associated corrective actions, for Issue 1. Enclosure 2 provides a synopsis of NSPM's determination of the cause, and associated corrective actions, for Issue 2.

Enclosure 3 provides NSPM's Significance Determination Process (SDP), Phase 3, report for both Issue 1 and Issue 2. The internal events Core Damage Probability (CDP) and the Large Early Release Probability (LERP) for Issue 1 were calculated and conservatively assume that 11 AFWP was not procedurally recoverable as a result of Issue 1. The period of unavailability assumed for Issue 1 was 10 days. The results of the calculations are contained in Table 1, page 2 of Enclosure 3, and conclude that the CDP and LERP values indicate that Issue 1 was of very low safety significance.

The internal events CDP and LERP were also calculated for Issue 2, the difference being that for Issue 2 the 11 AFWP was recoverable through the use of normal plant procedures. The duration of the unavailability was approximately 139 days. The results of the calculations for Issue 2 are contained in Table 2, page 2 of Enclosure 3. The Human Error Probability (HEP) that was calculated for the recovery of the 11 AFWP is included as Attachment 1 of Enclosure 3. Using the calculated HEP from Attachment 1, the final CDP/LERP values were calculated and are also listed in Table 2, page 2 of Enclosure 3, also concluding that Issue 2 was of very low safety significance.

Fire risk impact was calculated using the methodology and assumptions as described in Enclosure 3. The total change in fire risk is the summation of the calculated risk increase for fires in the control and relay room resulting in control room abandonment and fires occurring in Fire Area 31, Train A Hot Shutdown Auxiliary Feedwater Room, for each AFWP issue. The remaining areas contribute a negligible risk change resulting from these two issues. The increase in fire risk for both issues is of very low safety significance.

Enclosure 3 contains security-related information. Pursuant to 10CFR 2.390(d)(1), NSPM requests Enclosure 3 be withheld from public disclosure.

Summary of Commitments

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

A handwritten signature in black ink that reads "Michael D. Wadley". The signature is written in a cursive style with a period at the end.

Michael D. Wadley  
Site Vice President, Prairie Island Nuclear Generating Plant  
Northern States Power Company – Minnesota

Enclosures (3)

cc: Director, Office of Enforcement, USNRC  
Regional Administrator, Region III, USNRC  
Resident Inspector, Prairie Island, USNRC

## ENCLOSURE 1

### Apparent Violation in NRC Inspection Report Number 05000282/2008004; 05000306/2008004 Preliminary White Finding; EA-08-273

#### Issue 1 – 11 TD AFWP High Bearing Temperatures

#### Cause and Corrective Actions

##### 1) Cause

The high outboard turbine bearing temperature for 11 Turbine Driven (TD) Auxiliary Feedwater Pump (AFWP) was caused by degraded insulation on the turbine governor valve and inadequate insulation configuration after the turbine was reassembled during the refueling outage, due to lack of guidance. High radiant heat from the governor valve and the inadequate turbine insulation configuration control caused the high bearing temperature.

##### 2) Corrective Actions

- Immediate Corrective Actions Completed
  - The governor valve was reinsulated due to degraded insulation, thus less heat was radiated to the bearing housing from the governor valve.
  - Insulation was added to the side of the turbine to protect the bearing housing from heat radiating from the turbine casing.
- Results Achieved
  - Once the governor valve and turbine were reinsulated, the outboard turbine bearing temperature was below the 220°F action range.
  - Surveillance Procedure SP 1103, 11 TD AFWP Once Every Refueling Shutdown Flow Test, was performed satisfactory and the pump was declared operable.
- Corrective Actions to Prevent Recurrence
  - A new insulation configuration was developed that protects the bearing housing from heat radiating from the sides of the turbine casing, yet allows heat from the turbine to be dissipated to the atmosphere. The new insulation configuration allows greater heat dissipation to the room and lowers turbine casing temperature, without compromising protection of the bearing housing, via use of diamond screen in lieu of insulation at the top of the casing. Modification EC 13312 for both turbines was approved October 25, 2008.
    - (a) Reinsulation of 22 TD AFWP with the new insulation configuration was completed October 27, 2008 during startup from the 2R25 refueling outage. SP 2330, 22 TD AFW Turbine/Pump Bearing Temperature Test, was completed with a 12°F temperature reduction with the new insulation configuration.

## ENCLOSURE 1

- (b) Reinsulation of 11 TD AFWP with the new insulation configuration will be performed no later than the Fall 2009 (1R26) refueling outage. The newly developed insulation configuration will allow greater heat dissipation from the turbine case to further increase operating margin.
- (c) Revision of the preventive maintenance procedures to reflect the new insulation configuration and important insulation characteristics for 11 and 22 TD AFWP's is scheduled prior to their next use and no later than 1R26.

## ENCLOSURE 2

### Apparent Violation in NRC Special Inspection Report 05000282/2008008; 05000306/2008008, Preliminary White Finding; EA-08-272

#### 11 TD AFWP Discharge Pressure Switch Manifold Isolation Mispositioning

##### Cause and Corrective Actions

##### 1) Cause

The root cause was a failure of the site to adequately control the configuration of components that have the potential to adversely impact the design function of the safety related Structures, Systems, and Components (SSCs).

##### 2) Corrective Actions

- Immediate Corrective Actions Completed
  - Verified the correct configuration of other valves that could isolate trip functions in the Auxiliary Feedwater (AFW) system.
  - Locked-wired in the open position the suction and discharge pressure switch manifold isolation valves for all four AFW pumps.
  - Walked down and verified the position of a sampling of instrument manifold valves on other safety related systems; no discrepancies were noted.
- Results Achieved
  - Following completion of the immediate corrective actions and satisfactory completion of SP 1102, 11 TD AFWP Monthly Test, the 11 TD AFWP was declared operable.
- Corrective Actions to Prevent Recurrence
  - Complete labeling of Unit 1 and Unit 2 AFW instrument manifold valves will be completed by December 12, 2008.
  - Conduct a comprehensive review of site configuration control standards and implement corrective actions
    - (a) Corrective actions for accessible areas will be completed by August 25, 2009.
    - (b) Corrective actions for Unit 1 containment will be completed by November 20, 2009 (1R26 refueling outage).
    - (c) Corrective actions for Unit 2 containment will be completed by May 25, 2010 (2R26 refueling outage).