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L-PI-17-048
10 CFR 50.73

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U.S. Nuclear Regulatory Commission
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Prairie Island Nuclear Generating Plant Unit 2
Docket 50-306
Renewed License No. DPR-60

Licensee Event Report 50-306/2017-001-00, 23 Containment Fan Coil Unit Operability

Northern States Power Company, a Minnesota corporation, doing business as Xcel Energy (hereafter "NSPM"), encloses Licensee Event Report (LER) 50-306/2017-001-00, 23 Containment Fan Coil Unit Operability.

Summary of Commitments

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

Scott Northard
Site Vice President, Prairie Island Nuclear Generating Plant
Northern States Power Company – Minnesota

Enclosure:

cc: Regional Administrator, Region III, USNRC
Project Manager, Prairie Island Nuclear Generating Plant, USNRC
Resident Inspector, Prairie Island Nuclear Generating Plant, USNRC
State of Minnesota

ENCLOSURE 1

Licensee Event Report 50-306/2017-001-00

3 Pages Follow

NRC FORM 366 (04-2017) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 03/31/2020

LICENSEE EVENT REPORT (LER)

(See Page 2 for required number of digits/characters for each block)

(See NUREG-1022, R.3 for instruction and guidance for completing this form http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/)

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Prairie Island Nuclear Generating Plant Unit 2	05000 306	1 OF 3

4. TITLE

23 Containment Fan Coil Unit Operability

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
5	2	2016	2017	- 001	- 00	11	29	2017	FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE

Unit 1 Mode 1
Unit 2 Mode 1

10. POWER LEVEL

Unit 1 100%
Unit 2 100%

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)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(C)	☐ 73.77(a)(1)
☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(D)	☐ 73.77(a)(2)(i)
☐ 20.2203(a)(2)(vi)	☒ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(vii)	☐ 73.77(a)(2)(ii)
	☐ 50.73(a)(2)(i)(C)	☐ OTHER Specify in Abstract below or in NRC Form 366A	

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT	TELEPHONE NUMBER *(Include Area Code)*
Frank Sienczak	612-342-8987

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

14. SUPPLEMENTAL REPORT EXPECTED

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

15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR

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

From May 2, 2016 to May 6, 2016, when B Train 122 Control Room Chiller (CRC) was out-of-service (OOS) per Technical Specifications (Tech Specs) 3.7.11 Condition A, Unit 2 A Train 23 Containment Fan Coil Unit (FCU) was OOS. According to revision 41 of site procedure C18.1, "Engineered Safeguards Equipment Support Systems," Bus 16 load sequencer and Bus 121 were inoperable when 122 CRC was OOS. Bus 121 supports B Train Diesel Driven Cooling Water Pump and Unit 2 B Train containment cooling (22/24 FCUs). So both trains of containment FCUs were OOS at the same time for approximately 35.6 hours. This would have required entry into LCO 3.0.3 putting Unit 2 in MODE 3 within 7 hours, this did not occur. This event is reportable under 10 CFR 50.73(a)(2)(i)(B), Operation or Condition Prohibited by Tech Specs.

The cause was that the Senior Reactor operators failed to utilize Human Performance Tools (Verification/Validation and Procedure Use/Adherence) when assessing the Tech Specs impact to Unit 2 for applying LCO 3.0.6 when 122 CRC was taken OOS.

Corrective actions include independent assessment of shared system LCO's for each unit, revising the LCO database, established a standard for LCO 3.0.6 log entries, and revising the safety function determination program to be more user friendly.

LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET

(See NUREG-1022, R.3 for instruction and guidance for completing this form http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/)

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Prairie Island Nuclear Generating Plant Unit 2	05000-306	2017	- 001	- 00

NARRATIVE

DESCRIPTION OF EVENT

During an extent of condition review for an issue with correct application of Technical Specifications (Tech Specs) LCO 3.0.6 that occurred August of 2017, a similar condition was discovered. While 122 Control Room Chiller (CRC) was out-of-service (OOS) due to chiller oil temperature outside operability limit per Tech Specs 3.7.11 Condition A, from May 2, 2016 to May 6, 2016, 23 Containment Fan Coil Unit (FCU[1]) was OOS due to a problem with the discharge damper. According to guidance in C18.1, "Engineered Safeguards Equipment Support Systems", Bus 16 load sequencer and Bus 121 are inoperable when 122 CRC is OOS (safeguards room cooling is provided by CRC). Supported systems including 21 Safeguards Screenhouse Roof Exhaust Fan (powered from Bus 121), supported B Train Diesel Driven Cooling Water Pump, and B Train containment cooling (22/24 FCUs) were also OOS.

Having both trains of containment FCUs OOS at the same time for approximately 35.6 hours would require entry into LCO 3.0.3 for Unit 2, actions required to be in MODE 3 within 7 hours; MODE 4 within 13 hours; and MODE 5 within 37 hours. This did not occur. The Senior Reactor Operator failed to correctly assess the Technical Specifications (Tech Specs) impact to Unit 2 when applying Tech Specs 3.0.6. This event is reportable under 10 CFR 50.73(a)(2)(i)(B), Operation or Condition Prohibited by Tech Specs.

EVENT ANALYSIS

The event is reportable under 10 CFR 50.73(a)(2)(i)(B). The licensee shall report any operation or condition which was prohibited by the plant's Tech Specs. This condition meets the reporting criteria because both trains of containment FCUs were OOS at the same time for approximately 35.6 hours, this required entry into LCO 3.0.3, putting Unit 2 in MODE 3 within 7 hours. Tech Specs 3.0.3 for Limiting Condition for Operation was not entered and the required actions were not initiated within 1 hour to place the unit, as applicable, in MODE 3 in 7 hours; MODE 4 within 13 hours; and MODE 5 within 37 hours.

The Containment Air Cooling System consists of four fan coil units, a duct distribution system, and the associated instrumentation and controls. During normal operation the fans may be run at high or low speed and during post-accident conditions the fans run at low speed. The Containment Air Cooling System is designed to recirculate and cool the containment atmosphere in the event of a loss-of-coolant or main steam line break accident and thereby ensure that the containment pressure cannot exceed its design value of 46 psig at 268 degrees F (100% relative humidity).

Two of the four containment cooling units and one containment spray pump provide sufficient heat removal capability to maintain the post-accident containment pressure and temperature below the design value, assuming that the core residual heat is released to the containment as steam. Analysis has shown that the operation of one containment spray pump during the injection phase and the heat removal capability equivalent to a single fan coil unit at maximum fouling conditions is sufficient to maintain containment pressure less than design. While B Train FCU's 22 and 24 were OOS and A Train FCU 23 was OOS, A Train FCU 21 was operable. Because analysis has shown that single FCU with Containment Spray is sufficient to maintain containment pressure and 21 FCU was operable the event is not reportable under 10 CFR 50.73(a)(2)(v)(D) as an event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident (safety system functional failure). Even though 23, 22 and 24 FCU's were inoperable per Tech Specs, 21 FCU was operable and the ability to mitigate postulated accidents was not lost and the system was not in an unanalyzed condition as described 10 CFR 50.73(a)(2)(ii).

[1] IEEE Component Code – FCU

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Prairie Island Nuclear Generating Plant Unit 2	05000-306	2017	- 001	- 00

SAFETY SIGNIFICANCE

Safety function was not lost, because with both B Train FCU's and one A Train FCU inoperable per Tech Specs, the ability to mitigate postulated accidents was not lost and the system was not in an unanalyzed condition. Analysis has shown that the operation of one containment spray pump during the injection phase and the heat removal capability equivalent to a single fan coil unit at maximum fouling conditions is sufficient to maintain containment pressure less than design.

There were no radiological, environmental, or industrial impacts associated with this event, and PINGP did not adversely affect the health and safety of the public. This event report does not identify any safety system functional failures.

CAUSE

Cause evaluation determined that the Senior Reactor operators failed to utilize Human Performance Tools (Verification/Validation and Procedure Use/Adherence) when assessing the Technical Specification impact to Unit 2 for applying LCO 3.0.6 when 122 CRC was taken OOS.

CORRECTIVE ACTION(s)

1. Revise operations work instructions SWI O-200.3, TECHNICAL SPECIFICATION ENTRY & EXIT to require independent assessment of shared system LCO's for each unit. This action is complete.

2. Revise the LCO database to Limit the use of "Unit 0" to ISFSI Technical Specifications. This action is complete.

3. Establish the standard that LCO 3.0.6 log entries, carried over a shift, are in Narrative Logs using the Open Item option. This action is complete

4. Revise site work instruction 5AWI 3.15.8, SAFETY FUNCTION DETERMINATION PROGRAM to be more user friendly. Including graphical explanations. This action is expected to be completed by the end of the year.

PREVIOUS SIMILAR EVENTS

A review of the Corrective Action Program (CAP) and Licensee Event Reports (LERs) for PINGP revealed one similar event over the last three years.

LER 50-282/2015-005-01, Condition Prohibited by Technical Specification (ADAMS Accession Number ML16285A387). On September 11, 2015, it was identified that 122 Control Room Chiller was removed from service and control valve CV-31837 (121/122 Control Room Chiller Outlet) and CV-31838 (121/122 Control Room Chiller Inlet) were closed. This isolated Train B Safeguards Chilled Water and rendered Bus 16 Unit Cooler non-functional, which will result in unacceptable temperatures in the associated bus room during a postulated High Energy Line Break (HELB). Bus 16 would not have performed its safety function and was inoperable for greater than the time allowed by Tech Specs. Tech Specs 3.8.9 for Distribution Systems-Operating was not entered and the required actions were not taken to restore to an operable status within 8 hours or to enter MODE 3 in 6 hours and MODE 5 in 36 hours. This is a reportable event under 10 CFR 50.73(a)(2)(i)(b), Operation or Condition Prohibited by Tech Specs.