Xcel Energy®

Prairie Island Nuclear Generating Plant
1717 Wakonade Drive East
Welch, MN 55089

MAR 0 7 2018

L-PI-18-006
10 CFR 50.73

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

Prairie Island Nuclear Generating Plant, Units 1 and 2
Docket Nos. 50-282 and 50-306
Renewed Facility Operating License Nos. DPR-42 and DPR-60

Licensee Event Report 50-282/2018-001-00, 121 Motor Driven Cooling Water Pump Auto Start due to Smoking Packing on 11 Cooling Water Pump

Northern States Power Company, a Minnesota corporation, doing business as Xcel Energy (hereafter "NSPM"), encloses Licensee Event Report (LER) 50-282/2018-001-00, 121 Motor Driven Cooling Water Pump Auto Start due to Smoking Packing on 11 Cooling Water Pump.

If there is any question or if any additional information is needed, please contact Jeff Kivi, at 651-267-7309.

Summary of Commitments

This letter contains no new commitments and no changes to existing commitments

Scott Sharp
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
Department of Commerce, State of Minnesota

ENCLOSURE 1

LICENSEE EVENT REPORT 50-282/2018-001-00

4 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/)

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4. TITLE

121 Motor Driven Cooling Water Pump Auto Start due to Smoking Packing on 11 Cooling Water Pump

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
									Prairie Island Unit 2	05000306
1	8	2018	2018	- 001	- 00	3	7	2018	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)*
Jeff Kivi, Site Regulatory Affairs Manager	612-342-7309

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
D	BI	P	W318	No					

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)*

On January 8, 2018, Prairie Island Nuclear Generating Plant (PINGP) staff were running the 11 Cooling Water (CL) pump for post-maintenance testing. At 1437 CST, operators stopped 11 CL pump following a report from Maintenance staff that the inboard pump packing was smoking. Shortly after operators secured 11 CL pump the 121 Motor Driven Cooling Water Pump (MDCLP) auto-started and supplied the CL header. This event is reportable under 10 CFR 50.73(a)(2)(iv)(A) as an event that resulted in automatic actuation of an emergency service water system.

The cause of the 121 MDCLP auto-start was determined to be low CL header pressure after 11 CL pump was secured. Operators secured the 11 CL pump when they received the report that the inboard pump packing was smoking. Investigation found the most likely cause of the smoking pump packing was due to inadequate procedural guidance regarding packing replacement criteria.

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NARRATIVE

DESCRIPTION OF EVENT

On January 8, 2018, Prairie Island Nuclear Generating Plant (PINGP) Unit 1 and Unit 2 were both operating at 100% in MODE 1 and PINGP staff were running the 11 Cooling Water (CL) pump[1] for post-maintenance testing. The 11 CL pump is a nonsafety-related pump manufactured by Worthington Pump Corporation model number 16-LN-28. At 1437 CST, operators stopped 11 CL pump following a report from Maintenance staff that the inboard pump packing was smoking. Shortly after operators secured 11 CL pump the 121 Motor Driven Cooling Water Pump (MDCLP) auto-started and supplied the CL header[2]. The 121 MDCLP is designed to start automatically if CL header pressure drops to 80 pounds per square inch gauge (psig).

EVENT ANALYSIS

The PINGP CL System is a shared system for Units 1 and 2 and provides a heat sink for the removal of process and operational heat from safety-related components during a design basis accident or transient. During normal operation and shutdown, the CL System also provides this function for various safety-related and nonsafety-related components.

PINGP Units 1 and 2 share five CL pumps: one motor-driven and two diesel-driven vertical pumps that take a suction from the safeguards bay and two nonsafety-related motor-driven cooling water pumps. All five pumps are connected to a common pump discharge that directs CL flow into a header that splits into two trains upon receipt of a Safety Injection signal. The 121 MDCLP can function as a safeguards replacement when either safeguards diesel-driven cooling water pump is taken out of service. In this configuration, the pump is aligned manually to the appropriate train of safeguards power and motor-operated valves are administratively disabled in accordance with Technical Specifications.

This event is reportable under 10 CFR 50.73(a)(2)(iv)(A) as an event that resulted in automatic actuation of an emergency service water system.

SAFETY SIGNIFICANCE

There was no radiological, environmental, or industrial impact associated with the 121 MDCLP auto-start, and the health and safety of the public were not affected. The auto-start of the 121 Motor Driven Cooling Water Pump did not challenge nuclear safety as all plant systems responded as designed; therefore, this event does not represent a safety system functional failure for Unit 1 or Unit 2.

[1] EIIS Component Identifier: P
[2] EIIS System Code: BI

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CAUSE

The cause of the 121 MDCLP auto-start was determined to be low CL header pressure after 11 CL pump was secured. Operators secured the 11 CL pump when they received the report that the inboard pump packing was smoking. Investigation found the most likely cause of the smoking pump packing was due to inadequate procedural guidance. The maintenance procedure did not provide specific criteria for packing inspection nor did it provide guidance requiring replacement of the packing if packing adjustments were no longer effective at managing external seal leak-off.

CORRECTIVE ACTION(s)

1. The 11 Cooling Water pump was repaired and returned to service.
2. The 21 Cooling Water pump packing will be inspected.
3. The work instructions for monthly and two-year packing preventive maintenance on 11 and 21 Cooling Water pumps will be updated to include inspection criteria providing guidance requiring replacement of the packing if packing adjustments are no longer effective at managing external seal leak-off.

PREVIOUS SIMILAR EVENTS

Since 2009 there have been six, licensee event reports in regards to the 121 Cooling Water pump auto-starting for PINGP. All of these were cases where 121 Cooling Water pump behaved as expected in response to cooling water header pressure transients, but none of the previous transients were due to a similar shutdown of a CL pump in response to smoking packing.

LER 50-282/2009-002, Unplanned Safety Related Actuation of 121 Cooling Water Pump (Agencywide Documents Access and Management System (ADAMS) Accession Number ML091390396). On 3/19/2009, 121 MDCLP auto-started when 12 DDCLP was tripped in accordance with procedure resulting in a transient of the cooling water system pressure. The momentary drop in pressure was large enough to auto-start the 121 MDCLP while it was aligned for safeguards service.

LER 50-282/2011-001, Unplanned Actuation of 121 Motor Driven Cooling Water Pump (ADAMS Access Number ML 112840145). On 12/23/2010, the 121 MDCLP was not aligned as a safeguards replacement pump and auto-started. The actuation of the 121 MDCLP was determined to be reportable under 10 CFR 50. 73(a)(2)(iv)(A). Corrective actions to resolve the issue included performing a Cooling Water System review to determine methods and any single point vulnerabilities that can be performed to minimize the potential for auto-starts of a cooling water pump. Operating procedures were evaluated to determine if procedural or operation period changes can be made to reduce the likelihood of auto-starting a Cooling Water Pump.

LER 50-282/2012-002, Unplanned Actuation of 121 Motor Driven Cooling Water Pump (ADAMS Accession Number ML 12152A189). On 4/2/2012, while PINGP Unit 1 was operating at 100% power, 121 MDCLP auto-started while shutting down 22 DDCLP. The corrective action was to revise operating procedure C35 to ensure two MDCLPs are running prior to stopping the DDCLP.

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/)

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LER 50-282/2016-002, Listed System Actuation - Motor-Driven Cooling Water Pump Auto-Start (ADAMS Accession Number ML16085A181). On 1/29/2016, PINGP performed a planned overspeed post-maintenance test (PMT) of 22 Diesel Driven Cooling Water Pump in accordance with plant maintenance procedure. During the overspeed trip test PMT, 22 DDCLP tripped as expected and 121 MDCLP unexpectedly started automatically on low pressure in the cooling water pump discharge header.

LER 50-282/2016-005, 121 Motor Driven Cooling Water Pump Auto Started (ADAMS Accession Number ML16281A208). On 8/21/2016, PINGP 2RY Transformer locked out. The 121 MDCLP stopped due to loss of power and then automatically restarted when sequenced by the load sequencer. The pump auto started on low pressure in the cooling water pump discharge header.

LER 50-282/2016-006, 121 Motor Driven Cooling Water Pump Auto Start (ADAMS Accession Number ML17046A656). On December 18, 2016, at 0818 CDT, a fire in the PINGP Switch Yard due to 8H8 Breaker current transformer catastrophic failure resulted in an auto start of the 121 MDCLP on low header pressure (80 psig).