



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

OCT 07 2016

L-PI-16-078
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 50-282/2016-005-00, 121 Motor Driven Cooling Water Pump Auto Start

Northern States Power Company, a Minnesota corporation, doing business as Xcel Energy (hereafter "NSPM"), encloses Licensee Event Report (LER) 50-282/2016-005-00, 121 Motor Driven Cooling Water Pump Auto Start.

If there is any question or if any additional information is needed, please contact Frank Sienczak, at 651-267-1740.

Summary of Commitments

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

A handwritten signature in black ink, appearing to read 'Scott Northard'.

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

Enclosures:

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 50-282/2016-005-00

4 Pages Follow

**LICENSEE EVENT REPORT (LER)**
(See Page 2 for required number of
digits/characters for each block)

Estimated burden per response to comply with this mandatory 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 and Information Collections Branch (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.

1. FACILITY NAME Prairie Island Nuclear Generating Plant Unit 1	2. DOCKET NUMBER 05000 282	3. PAGE 1 OF 4
---	--------------------------------------	--------------------------

4. TITLE 121 Motor Driven Cooling Water Pump Auto Start										
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
08	21	2016	2016	- 005	- 00	10	07	2016	Prairie Island Unit 2	05000 306
									FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)			
Unit 1 Mode 1 Unit 2 Mode 1	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)
	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)
	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)
10. POWER LEVEL Unit 1 100% Unit 2 100%	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> 73.77(a)(1)
	<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	<input type="checkbox"/> 73.77(a)(2)(i)
	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 73.77(a)(2)(ii)
		<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> OTHER	Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT Frank Sienczak	TELEPHONE NUMBER (Include Area Code) 651-267-1740
---	---

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)

On August 21, 2016, at 1740 CDT, the Prairie Island Nuclear Generating Plant (PINGP) 2RY Transformer locked out. During the event, 121 Motor Driven Cooling Water Pump (MDCLP) stopped due to the 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. 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 a low-pressure condition in the cooling water pump discharge header resulting from 2RY Transformer lockout. There was no safety injection signal from PINGP Unit 1 nor Unit 2 when 121 MDCLP started. The health and safety of the public was not at risk. The most likely cause of 2RY Transformer lockout is that the breathers on 2RY Transformer dog house were not adequately maintained. Breathers were not adequately maintained due to design limitations that did not allow proper internal inspection.

Immediate actions taken, 2RY Transformer dog house dried out and internal components were tested to validate the functionality of the equipment. Results were satisfactory. Corrective actions, 2RY Transformer Dog house breathers and outdoor bus breather were replaced per work order prior to returning the transformer to service. Also, the Preventative Maintenance (PM) procedure was updated to perform the full internal inspection during the future PM's (bus duct or transformer).

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

Estimated burden per response to comply with this mandatory 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 and Information Collections Branch (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.

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Prairie Island Nuclear Generating Plant Unit 1	05000-282	2016	- 005	- 00

NARRATIVE**DESCRIPTION OF EVENT**

On August 21, 2016, at 1740 CDT, the Prairie Island Nuclear Generating Plant (PINGP) had the 2RY Transformer locked out. As a result, 121 Motor Driven Cooling Water Pump¹ stopped due to the loss of power and then automatically restarted when sequenced by the load sequencer. The pump auto started on low pressure condition in the cooling water pump discharge 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.

EVENT ANALYSIS

The PINGP Cooling Water (CL) System² 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.

Five CL pumps are connected to a common pump discharge header that directs CL flow into two separate headers: three motor-driven pumps and two diesel-driven pumps. 121 MDCLP can function as a safeguards replacement when a diesel driven 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.

The previous events (see below) were caused by pressure transients in the discharge header which occurred when the Diesel Driven Cooling Water Pump (DDCLP) tripped or was stopped. This event is different in it was caused by a low system pressure condition due to reduced pumping capacity which occurred when 121 MDCLP stopped during the loss of power.

2RY lockout and TS:

Relay targets and actuation indicates that the 59/2RSY (2RSY breaker ground protection) relay actuation initiated the 2RSY breaker lockout and leading to the 2RY XFMR lockout (86) relays.

As part of the troubleshooting activities, testing of 2RSY breaker and subcomponents, 2RY Transformer and subcomponents, cable, disconnects switches, Bus ducts, pot heads were performed as to identify the possible cause or the faulted component. All testing concluded there were no faulted components. Visual inspection and walk downs did not identify any tracking or animal intrusion. Visual inspection of the 2RY Transformer doghouse identified that there was a considerable amount of moisture on the internals (bushings and insulators, top and bottom of cabinet) and possible water intrusion on the cables.

¹IEEE Component Code - P

²EIIS System Code BI

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

Estimated burden per response to comply with this mandatory 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 and Information Collections Branch (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, NEOF-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.

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Prairie Island Nuclear Generating Plant Unit 1	05000-282	2016	- 005	- 00

The most likely cause of 2RY transformer lockout is that the breathers on 2RY transformer dog house were not adequately maintained. Breathers were not adequately maintained due to design limitations that did not allow proper internal inspection.

SAFETY SIGNIFICANCE

121 MDCLP operated as designed and automatically restarted in a short duration, other equipment operated as intended during the event. Although the cooling water system pressure was reduced for the duration that 121 MDCLP was stopped, adequate cooling water was supplied to safety related and non-safety related components during the event. Therefore, this event was of low safety significance.

There was no radiological, environmental, or industrial impact associated with this event, and the health and safety of the public were not affected. This event 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.

CAUSE

The cause of the 121 MDCLP auto-start was a low-pressure condition in the cooling water pump discharge header do to the pump trip on a loss of power from the 2RY Transformer lockout. The most likely cause of 2RY Transformer lockout is that the breathers on 2RY Transformer dog house were not adequately maintained. Breathers were not adequately maintained due to design limitations that did not allow proper internal inspection.

CORRECTIVE ACTION**Immediate actions taken:**

2RY Transformer dog house dried out and internal components were tested to validate the functionality of the equipment. Results were satisfactory.

Corrective actions:

2RY Transformer Dog house breathers and outdoor bus breather were replaced per work order prior to returning the transformer to service.

Extent of condition action:

Replacement of 1M, 2M, 1R and 2RX transformer 4kV side outdoor bus ducts Breathers.

Update of Preventative Maintenance (PM) procedure, to perform the full internal inspection of the breathers during the future PM's (bus duct or transformer).

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

Estimated burden per response to comply with this mandatory 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 and Information Collections Branch (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.

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Prairie Island Nuclear Generating Plant Unit 1	05000-282	2016	- 005	- 00

PREVIOUS SIMILAR EVENTS

LER 50-282/2011-001-02, Unplanned Actuation of 121 Motor Driven Cooling Water Pump, Supplement 2 (ADAMS Access Number ML112840145). On 12/23/2010, 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 50-282/2012-002-00, Unplanned Actuation of 121 Motor Driven Cooling Water Pump (ADAMS Accession Number ML12152A189). 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.

LER 50-282/2016-002-00, Listed System Actuation - Motor-Driven Cooling Water Pump Auto-Start (ADAMS Accession Number ML16085A181). On 1/29/2016, 121 MDCLP auto-start was a low-pressure transient in the cooling water pump discharge header resulting from the trip of 22 DDCLP. The corrective actions taken for this event include revising plant procedures to ensure 121 MDCLP is running prior to performing the overspeed trip test Preventive Maintenance Test (PMT) and to ensure the pump is running or in pullout position to prevent auto-start of 121 MDCLP when stopping a Diesel Driven Cooling Water Pump.