



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

MAR 25 2016

L-PI-16-022  
10 CFR 50.73

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

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

Licensee Event Report 50-282/2016-002-00 Listed System Actuation – Motor-Driven Cooling Water Pump Auto-Start

Licensee Event Report (LER) 50-282/2016-002-00 is enclosed. The LER describes an event in which the 121 Motor-Driven Cooling Water Pump (MDCLP) automatically started when stopping 22 Diesel-Driven Cooling Water Pump during overspeed trip post-maintenance testing (PMT). This condition is reported pursuant to 10 CFR 50.73(a)(2)(iv)(A) as an event that resulted in manual or automatic actuation of an emergency service water system that does not normally run and that serves as ultimate heat sink. Plant procedures were since revised to preclude automatic start of a MDCLP during PMT.

Summary of Commitments

This letter contains no new commitment and no revision to an existing commitment.

Thomas A. Conboy  
Director of Site Operations  
Prairie Island Nuclear Generating Plant  
Northern States Power Company - Minnesota

Enclosure (1)

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

**ENCLOSURE 1**

**LICENSEE EVENT REPORT 50-282/2016-002-00**

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.

<b>1. FACILITY NAME</b> Prairie Island Nuclear Generating Plant, Unit 1	<b>2. DOCKET NUMBER</b> 05000 282	<b>3. PAGE</b> 1 OF 4
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**4. TITLE**  
Listed System Actuation – 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
1	29	2016	2016	002	00	3	25	2016	Prairie Island, Unit 2	05000306
									FACILITY NAME	DOCKET NUMBER
										05000

**9. OPERATING MODE**

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

MODE 1 (Unit 1) MODE 5 (Unit 2)	<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 100% (Unit 1) 0% (Unit 2)	<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 Glenn A. Carlson	TELEPHONE NUMBER (Include Area Code) 651-267-1755
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**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)

At 1110 Central Standard Time (CST) on 1/29/2016, the Prairie Island Nuclear Generating Plant (PINGP) performed a planned overspeed post-maintenance test (PMT) of 22 Diesel-Driven Cooling Water Pump (DDCLP) in accordance with plant maintenance procedure. During the overspeed trip test PMT, 22 DDCLP tripped as expected, and 121 Motor-Driven Cooling Water Pump (MDCLP) unexpectedly started automatically ("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 that does not normally run and that serves as ultimate heat sink.

The cause of the 121 MDCLP auto-start was a low-pressure transient in the cooling water pump discharge header resulting from the trip of 22 DDCLP. 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.

Corrective actions to be taken for this event include revising plant procedures to ensure 121 MDCLP is running prior to performing the overspeed trip test PMT and to ensure the pump is running or in pullout position to prevent auto-start of 121 MDCLP when stopping a DDCLP.



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

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Prairie Island, Unit 1	05000-282	2016	- 002	- 00

**NARRATIVE**

Event Description

At 1110 CST on 1/29/2016, PINGP performed a planned overspeed trip test PMT of 22 DDCLP (EIIS Component Identifier P) in accordance with preventive maintenance procedure PM 3002-2-22, 22 DDCLP Diesel Minor Periodic Maintenance. During the overspeed trip test, 22 DDCLP tripped, and 121 MDCLP (EIIS Component Identifier P) 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 that does not normally run and that serves as ultimate heat sink.

Event Analysis

The PINGP Cooling Water (CL) System (EIIS System Identifier BI) 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.

11 and 21 MDCLPs were running, and 121 MDCLP was not aligned as safeguards. Data from the Emergency Response Computer System (ERCS) showed that tripping 22 DDCLP resulted in a reduction of 8 psig in Loop A CL header pressure, 10 psig in Loop B CL header pressure, and over 1000 gpm in Loop B CL flow. 22 DDCLP developed a greater than normal discharge pressure while running at higher than normal speed during the overspeed PMT, and tripping the pump the higher speed caused a higher than expected change in pressure compared to stopping the pump from normal speed.

Operators correctly performed steps from plant operating and maintenance procedures intended to prevent an automatic start of 121 MDCLP. No inappropriate action was identified related to human performance. 121 MDCLP has auto-started on low pressure on previous occasions.

Pressure transients in the discharge header occur when stopping a DDCLP. Corrective actions taken since the last auto-start in April 2012 were effective in preventing auto-starts during monthly surveillance testing according to SP 1106A and SP 1106B, but they were not effective in this instance. Those corrective actions focused on running two MDCLPs and ensuring the pump discharge header was cross-connected to minimize the discharge header pressure transient when stopping a DDCLP. During this event, 22 DDCLP was running at an elevated speed, resulting in a larger transient when 22 DDCLP was stopped.

Safety Significance

121 MDCLP and other equipment operated as intended during the event. The low pressure transient was confined to the pump discharge header and did not result in below normal pressure in either cooling water



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system header. Therefore, this event was of low safety significance since there was no loss of cooling water supply to safety-related or nonsafety-related system loads.

There was no radiological, environmental, nor 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 nor Unit 2.

The likelihood of an automatic pump start during monthly surveillance tests (surveillance procedures SP 1106A, 12 Diesel Cooling Water Pump Monthly Test, and SP 1106B, 22 Diesel Cooling Water Pump Monthly Test) is low since no unexpected start has occurred on low pressure since April 2012 by requiring two MDCLPs are operating prior to stopping a DDCLP.

Cause

The cause of the 121 MDCLP auto-start was a low-pressure transient in the cooling water pump discharge header resulting from the trip of 22 DDCLP during planned overspeed PMT.

Corrective Action

To eliminate a 121 MDCLP auto-start during the overspeed trip test PMT, PM 3002-2-22 and PM 3002-2-12, 12 DDCLP Diesel Minor Periodic Maintenance, were revised to ensure 121 MDCLP is running prior to performing PMT.

To eliminate a 121 MDCLP auto-start during SP 1106A, SP 1106B, and C35, these procedures will be revised to ensure 121 MDCLP is running or in pullout position when stopping a DDCLP.

Previous Similar Events

Previous instances of 121 MDCLP auto-start have occurred and determined to be caused by having only one MDCLP running prior to shutting down the DDCLP.

LER 1-09-02, 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 50-282/2011-001-02, 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.



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Prairie Island, Unit 1	05000-282	2016	- 002	- 00

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.