



August 11, 2011

L-PI-11-078  
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  
Dockets 50-282 and 50-306  
Renewed License Nos. DPR-42 and DPR-60

LER 50-282/2011-001-01, Unplanned Actuation of 121 Motor Driven Cooling Water Pump, Supplement 1

Reference: "LER 50-282/2011-001-00, Unplanned Actuation of 121 Motor Driven Cooling Water Pump", dated April 26, 2011 (ADAMS Accession ML111170271)

Northern States Power Company, a Minnesota corporation (NSPM), doing business as Xcel Energy, herewith encloses Licensee Event Report (LER) 50-282/2011-001-01.

Summary of Commitments

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

A handwritten signature in black ink, appearing to read 'Mark A. Schimmel'.

Mark A. Schimmel  
Site Vice President, Prairie Island Nuclear Generating Plant  
Northern States Power Company - Minnesota

Enclosure

cc: Administrator, Region III, USNRC  
Project Manager, Prairie Island Nuclear Generating Plant (PINGP), USNRC  
Resident Inspector, PINGP, USNRC  
Department of Commerce, State of Minnesota

**ENCLOSURE**

**LICENSEE EVENT REPORT 50-282/2011-001-01**

**4 Pages Follow**

**LICENSEE EVENT REPORT (LER)**(See reverse 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 Records and FOIA/Privacy Service Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to [infocollects.resource@nrc.gov](mailto:infocollects.resource@nrc.gov), and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0066), 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**

Unplanned Actuation of 121 Motor Driven Cooling Water Pump, Supplement 1

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
12	23	2010	2011	001	01	08	11	2011	Prairie Island Unit 2	05000 306
									FACILITY NAME	DOCKET NUMBER
										05000

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

**12. LICENSEE CONTACT FOR THIS LER**

<b>NAME</b> Sam J. DiPasquale, P.E.	<b>TELEPHONE NUMBER (Include Area Code)</b> 651.388.1121 x7350
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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**

<input type="radio"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE). <input type="radio"/> NO	<b>15. EXPECTED SUBMISSION DATE</b>	MONTH	DAY	YEAR

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

On March 3, 2011, an evaluation determined that the 121 Motor Driven Cooling Water Pump (MDCLP) when not aligned as a safeguards replacement pump is included in the list of systems in 10 CFR 50.73(a)(2)(iv)(B). As a result, an actuation of the 121 MDCLP on 12/23/2010 was determined to be reportable under 10 CFR 50.73(a)(2)(iv)(A).

The causal evaluation determined that the 121 MDCLP autostart was due to low cooling water header pressure. The low cooling water header pressure was caused by a demand increase that resulted from the 11 Containment and Aux Building Chiller trip. Corrective actions to resolve the issue include performing a Cooling Water System review to determine methods and any single point vulnerabilities that can be performed to minimize the potential for autostarts of a cooling water pump. Operating procedures will also be evaluated to determine if procedural or operation period changes can be made to reduce the likelihood of autostarting a Cooling Water Pump.

## LICENSEE EVENT REPORT (LER)

## CONTINUATION SHEET

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EVENT DESCRIPTION

At the Prairie Island Nuclear Generating Plant (PINGP), the Cooling Water (CL) System<sup>1</sup> is a shared system common to both Units 1 and 2 that 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 non-safety related components.

The CL System consists of a common CL pump discharge header for the five CL pumps (two non-safeguards, two safeguards, and 1 interchangeable) that direct flow into two separate CL headers. Normal operation utilizes two non-safeguards horizontal pumps with the vertical motor-driven cooling water pump (121 MDCLP) as a standby. In addition, two safeguards vertical diesel driven cooling water pumps (DDCLPs) are provided for emergency operation. The 121 MDCLP will start upon a safety injection signal, but will trip off when both diesel driven pumps reach operating speed.

The 121 MDCLP may also 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.

On December 23, 2010, 121 MDCLP was not aligned as a safeguards replacement pump. Units 1 and 2 were operating at 100% power in MODE 1. An autostart of 121 MDCLP occurred due to a loss of train 'A' header pressure. The loss of header pressure was initiated by a sudden increase in flow demand when the 11 Auxiliary Building and Containment Chiller<sup>2</sup> tripped off line, causing the Containment Fan Coil Units (CFCUs) and Control Rod Drive Mechanism Cooling Coils (CRDM) to shift to Cooling Water. The autostart of the 121 MDCLP due to a loss of header pressure did not constitute a Maintenance Rule Functional Failure and is not reportable to EPIX.

During a January 2011 review of MSPI Unavailability data, the CL system engineer noted that the autostart of the 121 MDCLP occurred in December 2010. Due to recent changes in the understanding of the PINGP licensing basis for the CL system associated with postulated high energy line break (HELB) scenarios, the system engineer questioned whether the autostart might constitute a reportable event and initiated a corrective action request. During the subsequent evaluations, on March 3, 2011, the autostart was determined to be reportable.

The reported condition represents an automatic actuation of emergency service water systems that do not normally run and that serve as ultimate heat sinks. This is reportable under 10 CFR 50.73(a)(2)(iv)(A).

<sup>1</sup> EIS System Code: BI

<sup>2</sup> EIS System Code: KM

NRC FORM 366A (10-2010)		<b>LICENSEE EVENT REPORT (LER)</b>		U.S. NUCLEAR REGULATORY COMMISSION	
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		2011 - 001		- 01	

## EVENT ANALYSIS

The determination that an autostart of the 121 MDCLP, when not aligned as a safeguards replacement pump, should be reported under 10 CFR 50.73(a)(2)(iv)(A) is a change from previous station position. This is due to recent changes in the understanding of what equipment is required to mitigate a HELB at PINGP. The 121 MDCLP is an extra pump that is available to supplement the two safeguards DDCLPs. Previously, unless the pump was aligned as a safeguards replacement pump, it was not required to mitigate accident scenarios.

In 2010, additional analysis determined that the 121 MDCLP would be needed to mitigate the consequences of a HELB even when it is not aligned as a safeguards replacement pump. LER 50-282/2010-001-01 (Accession Number ML101830384) was submitted to the NRC on July 2, 2010 regarding this postulated HELB scenario.

Since the 121 MDCLP pump is now required to mitigate this HELB scenario, on March 3, 2011, PINGP determined that the December 23, 2010 autostart of the pump meets the criterion for NRC reporting under 10 CFR 50.73(a)(2)(iv)(A).

The reported condition demonstrated that the 121 MDCLP is capable of performing its Specified Function. Thus, the condition described in this LER does not represent a Safety System Functional Failure.

## SAFETY SIGNIFICANCE

The 121 MDCLP and the two DDCLPs automatically start on low cooling water header pressure. The water header pressure setpoint that starts the 121 MDCLP is slightly higher to ensure that it will automatically start before the DDCLPs. For this reported event, the 121 MDCLP started on the low pressure signal as expected. The 121 MDCLP and other equipment operated as intended during the event, therefore, this condition did not affect the health and safety of the public.

## CAUSE

On December 23, 2010, the 11 Containment and Auxiliary Chiller supplied the Containment Fan Coil Units (CFCUs) and Control Rod Drive Mechanism Cooling Coils (CRDMs) with chilled water. When the Chiller tripped, the CFCUs and CRDMs were automatically aligned to the Cooling Water (CL) system. This resulted in a low CL header pressure transient. The causal evaluation determined that the 121 Motor Driven Cooling Water Pump autostarted (as designed) due to low CL header pressure.

Initially, it was thought that leakage across the divider plate from a gasket contributed to the 121 MDCLP autostart. Further analysis determined that a failure of the divider-plate gasket could not be the cause of the chiller trip.

# LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

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## CORRECTIVE ACTION

The 11 Containment and Aux Building Chiller was shut down for the remaining 2010 and 2011 Winter period to correct the potential for another CL pump autostart from a chiller low flow condition.

The Cooling Water System will be reviewed to determine any single point vulnerabilities and methods that can be performed to minimize the potential for autostarts of a cooling water pump.

Operating procedures will also be evaluated to determine if procedural or operation period changes can be made to reduce the likelihood of autostarting a Cooling Water Pump.

The need for providing Operations personnel with additional training will be assessed and conducted if necessary.

## PREVIOUS SIMILAR EVENTS

LER 1-09-02 was submitted on May 18, 2009. This LER reported the automatic actuation of 121 MDCLP when it was aligned as a safeguards pump. The actuation occurred following planned maintenance of the 12 DDCLP. During post maintenance testing, 12 DDCLP was tripped per procedure. This resulted in a transient of the cooling water system pressure. The momentary drop in pressure was large enough to automatically start the 121 MDCLP while it was aligned for safeguards service.