

March 31, 2011

L-PI-11-026  
10 CFR 50.73U S Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555-0001Prairie Island Nuclear Generating Plant Units 1 and 2  
Dockets 50-282 and 50-306  
License Nos. DPR-42 and DPR-60LER 1-09-06, Unanalyzed Condition Due to Potential Safety System Susceptibility to Turbine Building Flooding Due to a Postulated High Energy Line Break, Supplement 2

References: "LER 1-09-06, Unanalyzed Condition Due to Potential Safety System Susceptibility to Turbine Building Flooding Due to a Postulated High Energy Line Break", dated December 17, 2009 (ADAMS Accession ML093510917)

"LER 09-06, Unanalyzed Condition Due to Potential Safety System Susceptibility to Turbine Building Flooding Due to a Postulated High Energy Line Break, Supplement 1", dated April 8, 2010 (ADAMS Accession ML100980611)

Northern States Power Company, a Minnesota corporation (NSPM), doing business as Xcel Energy, herewith encloses Licensee Event Report (LER) 1-09-06, Supplement 2.

This event was previously reported on December 17, 2009 and April 8, 2010 (References).

Summary of Commitments

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

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

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Enclosure

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

**ENCLOSURE**

**LICENSEE EVENT REPORT 1-09-06**

**SUPPLEMENT 2**

**3 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 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@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> 05000282	<b>3. PAGE</b> 1 of 3
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**4. TITLE**  
Unanalyzed Condition Due to Potential Safety System Susceptibility to Turbine Building Flooding Due to a Postulated High Energy Line Break, Supplement 2

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
10	20	2009	2009	006	02	03	31	2011	Prairie Island Unit 2	05000306
									FACILITY NAME	DOCKET NUMBER

<b>9. OPERATING MODE</b> Mode 5	<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> 0	<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 checked="" 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 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 checked="" 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**

NAME Sam J. DiPasquale, P.E.	TELEPHONE NUMBER (Include Area Code) 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

<b>14. SUPPLEMENTAL REPORT EXPECTED</b>	<b>15. EXPECTED SUBMISSION DATE</b>	MONTH	DAY	YEAR
<input type="radio"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE).		<input type="radio"/> NO		

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

On October 20, 2009, Prairie Island Nuclear Generating Plant (PINGP) Unit 1 was in Mode 5 during a refueling outage. Unit 2 was in Mode 1 operating at full power. PINGP staff determined that in the event of flooding in the Turbine Building, due to a postulated high energy line break (HELB), operability of the Unit 1 Emergency Diesel Generators (D1 and D2) may not be assured.

The as-found condition was an original design issue that was determined to be reportable during preparation of an analysis of flooding due to a postulated HELB in the Turbine Building. Physical and procedural changes have been made to minimize challenges to plant equipment and personnel in combating potential flooding events. The causal evaluation determined that an incorrect mindset was developed that large internal flooding events in the Turbine Building could be mitigated by operator action. It was also determined that management oversight and resolution of identified Turbine Building HELB and flooding issues were lacking.

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

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Prairie Island Nuclear Generating Plant Unit 1	05000282	YEAR 2009 - 006	- 01	2 of 3

**EVENT DESCRIPTION**

A high energy line break (HELB) in the Turbine Building can result in flooding due to release of condensate/feedwater from the break. Additionally, the broken high energy pipe can cause consequential failure of adjacent piping such as cooling water or fire protection (which have unlimited sources of water). These water sources might eventually fill the Turbine Building to the point where operability/functionality of certain equipment in emergency diesel generator<sup>1</sup>, auxiliary feedwater (AFW)<sup>2</sup>, cooling water<sup>3</sup>, safety injection<sup>4</sup>, station air<sup>5</sup>, safeguards power<sup>6</sup>, and DC electrical power<sup>7</sup> systems could be adversely affected. The staff determined that, within the previous three years, this condition had resulted in the plant being in an unanalyzed condition that significantly degraded plant safety and a postulated condition that could have prevented fulfillment of a safety function.

PINGP staff had been evaluating the potential effects of a postulated HELB in the Turbine Building, including the impact of flooding due to a HELB. On October 20, 2009, Prairie Island Nuclear Generating Plant (PINGP) Unit 1 was in Mode 5 during a refueling outage. As part of the evaluation of postulated HELB flooding, PINGP staff determined that in the event of flooding in the Turbine Building due to a HELB, operability of the Unit 1 Emergency Diesel Generators (D1 and D2) may not be assured. Due to being in Mode 5 (which does not have the potential for a HELB), at the time of discovery Unit 1 was not in a condition that significantly degraded plant safety.

**EVENT ANALYSIS**

This condition was a susceptibility of equipment to a consequential failure from a postulated Turbine Building HELB. The event was reported under 10 CFR 50.73(a)(2)(ii)(B) as an unanalyzed condition and 10 CFR 50.73(a)(2)(v)(A) as a condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to shut down the reactor and maintain it in a safe shutdown condition. The condition represented a safety system functional failure for both Units 1 and Unit 2.

**SAFETY SIGNIFICANCE**

This LER is not associated with an event resulting in actual flooding of any portion of the plant. Therefore there were no actual consequences to the health and safety of the public as a result of this condition.

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

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

<sup>3</sup> EIS System Code: BI

<sup>4</sup> EIS System Code: BP

<sup>5</sup> EIS System Code: LE

<sup>6</sup> EIS System Code: EB

<sup>7</sup> EIS System Code: EJ

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

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CAUSE

The causal evaluation determined that an incorrect mindset was developed that large internal flooding events in the Turbine Building could be mitigated by operator action. It was also determined that management oversight and resolution of identified Turbine Building HELB and flooding issues were lacking.

CORRECTIVE ACTIONS

Corrective actions that have been implemented or are currently in progress are:

1. Develop and approve a design and licensing basis for internal flooding considering internal flooding sources of water.
2. Develop a fleet program engineering standard and establish a Program Engineering key performance indicator for the HELB and flooding programs.
3. Rollup doors on the exterior of the Turbine Building have been opened and potential obstacles removed to allow floodwater to drain unimpeded.
4. Gaps around battery room doors have been decreased.
5. Access covers in the AFW pump room trench cover plates have been fastened down.
6. Flood barriers have been installed to reduce impact upon D1, D2, and the Unit 2 Emergency Diesel Generators (D5 and D6).

PREVIOUS SIMILAR EVENTS

LER 2-08-01, Unanalyzed Condition Due to Both Trains of Component Cooling Being Susceptible to a Postulated High Energy Line Break, Supplement 1, was submitted January 19, 2009. This LER described a condition where both trains of the component cooling water system were susceptible to a single failure caused by a postulated HELB in the Turbine Building.

LER 50-282/2010-001-01, Unanalyzed Condition Due to Postulated High Energy Line Break On Cooling Water System, Supplement 1, was submitted July 2, 2010. This LER determined that in the event of a postulated high energy line break (HELB) event with a concurrent loss of offsite power (LOOP) and a single active failure of a cooling water (CL) pump without a corresponding safety injection (SI) signal, the CL system might not provide sufficient water to required cooling loads until after the Turbine Building cooling loads were isolated.

LER 50-282/2010-003-00, Postulated Flooding of Battery Rooms Due To Inadequate Battery Room Door Threshold Seals, was submitted August 9, 2010. This LER described a condition where the battery rooms were declared inoperable due to potential flooding.