



December 17, 2009

L-PI-09-131  
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  
License Nos. DPR-42 and DPR-60

LER 1-09-06, Unanalyzed Condition Due to Potential Safety System Susceptibility to Turbine Building Flooding Due to a Postulated High Energy Line Break

Northern States Power Company, a Minnesota corporation (NSPM) herewith encloses Licensee Event Report (LER) 1-09-06. The engineering analysis for the reported condition is in progress and will be incorporated into a causal analysis. A supplement to the LER will provide additional information from these analyses.

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

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**

**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.

**1. FACILITY NAME**

Prairie Island Nuclear Generating Plant Unit 1

**2. DOCKET NUMBER**

05000282

**3. PAGE**

1 of 3

**4. TITLE**

Unanalyzed Condition Due to Potential Safety System Susceptibility to Turbine Building Flooding Due to a Postulated High Energy Line Break

**5. EVENT DATE**

MONTH	DAY	YEAR
10	20	2009

**6. LER NUMBER**

YEAR	SEQUENTIAL NUMBER	REV NO
2009	006	00

**7. REPORT DATE**

MONTH	DAY	YEAR
12	17	2009

**8. OTHER FACILITIES INVOLVED**

FACILITY NAME	DOCKET NUMBER
Prairie Island Unit 2	05000306

**9. OPERATING MODE**

Mode 5

**10. POWER LEVEL**

0

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

- |   |   |  |   |
|---|---|--|---|
| <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)     |
| <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**

Kathryn Mews

**TELEPHONE NUMBER (Include Area Code)**

651.388.1121

**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
03	26	2010

**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 uncovered 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 results and corrective actions of the ongoing evaluation of turbine building flooding due to a potential HELB will be provided in a supplemental LER.

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

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Prairie Island Nuclear Generating Plant Unit 1	05000282	YEAR	SEQUENTIAL NUMBER	REV NO	2 of 3
		2009	- 006	- 00	

**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 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 this condition had resulted in the plant being in an unanalyzed condition that significantly degraded plant safety within the previous three years.

PINGP staff have 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 is being 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. This represents a safety system functional failure.

Evaluation of potential flooding from a postulated HELB in the turbine building is ongoing. Additional information from the evaluation will be submitted to the NRC via a supplement to this LER.

**SAFETY SIGNIFICANCE**

This LER is not associated with an event resulting in actual flooding of any portion of the plant. There were no actual consequences to the health and safety of the public as a result of this condition. The NSPM evaluation of risk significance of the as-found condition is ongoing and results will be included in the supplement to this LER.

<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

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**CAUSE & CORRECTIVE ACTION**

A causal analysis for this issue will be performed based on the results of the engineering analysis. NSPM will provide a supplement to this LER once the cause and corrective actions have been determined.

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

1. A design and licensing basis for internal flooding is being compiled.
2. Rollup doors on the exterior of the turbine building have been opened and potential obstacles removed to allow floodwater to drain unimpeded.
3. Gaps around battery room doors have been decreased.
4. Access covers in the AFW pump room trench cover plates have been fastened down.
5. Flood barriers have been installed to reduce impact upon D1 and D2.

**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.