



1717 Wakonade Drive  
Welch, MN 55089

April 29, 2024

L-PI-24-015  
10 CFR 50.73

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

Prairie Island Nuclear Generating Plant, Unit 2  
Docket No. 50-306  
Renewed Facility Operating License No. DPR-60

Prairie Island Nuclear Generating Plant Unit 2 Licensee Event Report 2024-001-00

Northern States Power Company, a Minnesota corporation, doing business as Xcel Energy (hereafter "NSPM"), hereby submits Licensee Event Report (LER) 50-306/2024-001-00 per 10 CFR 50.73(a)(2)(iv)(A).

Summary of Commitments

This letter makes no new commitments and no revisions to existing commitments.

A handwritten signature in black ink, appearing to read 'Timothy P. Borgen'.

Timothy P. Borgen  
Plant Manager, 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  
State of Minnesota

**ENCLOSURE**

**PRAIRIE ISLAND NUCLEAR GENERATING PLANT  
LICENSEE EVENT REPORT 50-306/2024-001-00**

3 pages follow



**LICENSEE EVENT REPORT (LER)**

(See Page 2 for required number of digits/characters for each block)

(See NUREG-1022, R.3 for instruction and guidance for completing this form  
<http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/>)

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, Library, and Information Collections Branch (T-6 A10M), U. S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by email to [Infocollections.Resource@nrc.gov](mailto:Infocollections.Resource@nrc.gov), and the OMB reviewer at: OMB Office of Information and Regulatory Affairs, (3150-0104), Attn: Desk Officer for the Nuclear Regulatory Commission, 725 17th Street NW, Washington, DC 20503. The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless the document requesting or requiring the collection displays a currently valid OMB control number.

1. Facility Name Prairie Island Nuclear Generating Plant, Unit 2	<input checked="" type="checkbox"/> 050	2. Docket Number -306	3. Page 1 OF 3
	<input type="checkbox"/> 052		

4. Title  
Reactor trip and auto-start actuation of Auxiliary Feedwater due to loss of suction to the 22 Main Feedwater Pump

5. Event Date			6. LER Number			7. Report Date			8. Other Facilities Involved	
Month	Day	Year	Year	Sequential Number	Revision No.	Month	Day	Year	Facility Name	Docket Number
03	03	2024	2024	001	00	04	29	2024	<input type="checkbox"/> 050	
									<input type="checkbox"/> 052	

9. Operating Mode Mode 1	10. Power Level 29
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11. This Report is Submitted Pursuant to the Requirements of 10 CFR §: (Check all that apply)

<input type="checkbox"/> 10 CFR Part 20	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 10 CFR Part 50	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	<input type="checkbox"/> 73.1200(a)
<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	<input type="checkbox"/> 73.1200(b)
<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)	<input type="checkbox"/> 73.1200(c)
<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.36(c)(2)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)	<input type="checkbox"/> 73.1200(d)
<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 10 CFR Part 21	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 10 CFR Part 73	<input type="checkbox"/> 73.1200(e)
<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 21.2(c)	<input type="checkbox"/> 50.69(g)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.77(a)(1)	<input type="checkbox"/> 73.1200(f)
<input type="checkbox"/> 20.2203(a)(2)(iii)		<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> 73.77(a)(2)(i)	<input type="checkbox"/> 73.1200(g)
<input type="checkbox"/> 20.2203(a)(2)(iv)		<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	<input type="checkbox"/> 73.77(a)(2)(ii)	<input type="checkbox"/> 73.1200(h)
<input type="checkbox"/> 20.2203(a)(2)(v)		<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)		

OTHER (Specify here, in abstract, or NRC 366A).

12. Licensee Contact for this LER

Licensee Contact Nathan Fedora, Senior Nuclear Regulatory Engineer	Phone Number (Include area code) 612-342-8971
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13. Complete One Line for each Component Failure Described in this Report

Cause	System	Component	Manufacturer	Reportable to IRIS	Cause	System	Component	Manufacturer	Reportable to IRIS

14. Supplemental Report Expected

<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes (If yes, complete 15. Expected Submission Date)	15. Expected Submission Date	Month 06	Day 30	Year 2024
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16. Abstract (Limit to 1326 spaces, i.e., approximately 13 single-spaced typewritten lines)

At 11:42 on March 03, 2024, with Prairie Island Nuclear Generating Plant Unit 2 operating at 29 percent power, the Unit 2 Reactor automatically tripped due to a Turbine trip caused by a loss of suction to the 22 Main Feedwater (FW) Pump. The loss of 22 Main FW Pump led to an auto-start actuation of Auxiliary Feedwater. Operators responded to the event in accordance with approved procedures and safely placed the plant in Mode 3. All systems responded normally post trip.

The cause of the event is currently under evaluation and will be provided later, along with corrective actions, as a supplement to this LER.

This event is reportable under 10 CFR 50.73(a)(2)(iv)(A) due to a Reactor Trip and a valid Pressurized Water Reactor Auxiliary Feedwater actuation.



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

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1. FACILITY NAME  Prairie Island Nuclear Generating Plant, Unit 2	<input checked="" type="checkbox"/> 050	2. DOCKET NUMBER  -306	3. LER NUMBER		
	<input type="checkbox"/> 052		YEAR 2024	SEQUENTIAL NUMBER 001	REV NO. 00

**NARRATIVE**

Plant Operating Conditions Prior to the Event:  
Unit 1 – Mode 1, 100 percent Power  
Unit 2 – Mode 1, 29 percent Power.

**EVENT DESCRIPTION**

At 11:42 on March 03, 2024, with Prairie Island Nuclear Generating Plant Unit 2 operating at 29 percent power, 22 Main Feedwater (FW) [SJ] Pump experienced a loss of suction, resulting in the automatic actuations of Auxiliary Feedwater (AFW) [BA] and the trip of the Main Turbine [TA] and subsequently the Reactor.

During power ascension the 21 and 22 Condensate (CD) [SD] Pumps were running along with the 22 Main FW Pump. Per normal startup procedure, a Condensate Polishing [SF] filter demineralizer (F/D) was being placed into service to improve the chemistry of the FW system by removing ionic and particulate contaminants from the condensate water. The suction pressure on the 22 Main FW Pump dropped below the trip set point causing the automatic trip of the 22 Main FW pump. With the 21 Main FW Pump off, the loss of the 22 Main FW Pump caused an automatic start of both the 21 Turbine Driven AFW Pump and 22 Motor Driven AFW Pump.

This event is reportable under 10 CFR 50.73(a)(2)(iv)(A) due to a Reactor trip and an AFW actuation.

Unit 1 was not affected during this event and remained at 100 percent power.

**ASSESSMENT OF SAFETY CONSEQUENCES**

All systems responded normally post trip. Decay heat was removed via the AFW system. Secondary steam control mechanism was controlled by the steam generator Pressurizer Power Operated Relief Valves (PORVs).

The health and safety of the public and site personnel were not impacted during this event.

**CAUSE OF THE EVENT**

The cause of Unit 2 Turbine Trip and subsequent Unit 2 Reactor Trip was a loss of suction to the 22 Main FW Pump.

Initial troubleshooting determined the cause of loss of suction to the 22 Main FW Pump was that CV-39140, Condensate Filter Demineralizer System Main Bypass Valve, [SF] the bypass for the full-flow filter demineralizer, failed to operate as expected while placing 22 F/D in service.

The direct cause of this event is being investigated and will be provided in the supplement to this LER.

**CORRECTIVE ACTIONS**

The station is currently investigating the cause(s) of the event. Additional corrective actions will be provided in the supplement to this LER.

The condensate polishing system was not used during subsequent startup of Unit 2 to prevent reoccurrence until the direct cause of this event had been determined. Steam Generator blowdown was used to remove iron and contaminants prior to startup.

(04-02-2024)



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

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**NARRATIVE**

**CORRECTIVE ACTIONS (continued)**  
At 07:00 on March 08, 2024, Unit 2 entered Mode 1 and was placed online.

**PREVIOUS SIMILAR EVENTS**  
The review of the similar past events will be provided in the supplement to this LER.

**ADDITIONAL INFORMATION**  
All times are in Central Daylight Time

Energy Industry Identification System (EIIS) codes are identified in the text as [XX].