



1717 Wakonade Drive  
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October 19, 2020

L-PI-20-058  
10 CFR 50.73

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

Prairie Island Nuclear Generating Plant, Unit 1  
Docket Nos. 50-282  
Renewed Facility Operating License Nos. DPR-42

Prairie Island Nuclear Generating Plant (PINGP) Unit 1 Licensee Event Report 2020-001-00

Northern States Power Company, a Minnesota corporation, doing business as Xcel Energy (hereafter "NSPM"), hereby submits Licensee Event Report (LER) 50-282/2020-001-00 per 10 CFR 50.73(a)(2)(iv)(A).

If you have any questions about this submittal, please contact Carrie Seipp, Senior Regulatory Engineer, at 612-330-5576.

Summary of Commitments

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

A handwritten signature in black ink, appearing to read 'Christopher P. Domingos', with a long horizontal flourish extending to the right.

Christopher P. Domingos  
Site Vice President, 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**

**PRAIRIE ISLAND NUCLEAR GENERATING PLANT  
LICENSEE EVENT REPORT 50-282/2020-001-00**

3 pages follow



**LICENSEE EVENT REPORT (LER)**

(See Page 3 for required number of digits/characters for each block)  
(See NUREG-1022, R.3 for instruction and guidance for completing this form <https://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 e-mail to [Infocollects.Resource@nrc.gov](mailto:Infocollects.Resource@nrc.gov), and the OMB reviewer at: OMB Office of Information and Regulatory Affairs, (3150-0104), Attn: Desk all: [oir\\_submission@omb.eop.gov](mailto:oir_submission@omb.eop.gov). 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

<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**  
Reactor Trip Caused by Spurious Neutron Flux Signal During Reactor Protection System Testing

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
08	26	2020	2020	- 001 -	00	10	19	2020	Facility Name	05000
									Facility Name	05000

<b>9. Operating Mode</b> 1	<b>10. Power Level</b> 095
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**11. This Report is Submitted Pursuant to the Requirements of 10 CFR §: (Check all that apply)**

<input checked="" type="checkbox"/> 10 CFR Part 20	<input type="checkbox"/> 20.2203(a)(2)(vi)	<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"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input checked="" type="checkbox"/> 10 CFR Part 73
<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.69(g)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(4)
<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> 73.71(a)(5)
<input type="checkbox"/> 20.2203(a)(2)(i)	<input checked="" type="checkbox"/> 10 CFR Part 21	<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	<input type="checkbox"/> 73.77(a)(1)(i)
<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 21.2(c)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 73.77(a)(2)(i)
<input type="checkbox"/> 20.2203(a)(2)(iii)	<input checked="" 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"/> 73.77(a)(2)(ii)
<input type="checkbox"/> 20.2203(a)(2)(iv)	<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"/> 20.2203(a)(2)(v)	<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)	

Other (Specify here, in Abstract, or in NRC 366A).

**12. Licensee Contact for this LER**

<b>Licensee Contact</b> Carrie Seipp, Senior Regulatory Engineer	<b>Phone Number (Include Area Code)</b> (612) 330-5576
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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
X	JC	CHA	W120	Y					

<b>14. Supplemental Report Expected</b>				<b>15. Expected Submission Date</b>		
<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes (If yes, complete 15. Expected Submission Date)			Month	Day	Year

**16. Abstract** (Limit to 1560 spaces, i.e., approximately 15 single-spaced typewritten lines)

On August 26, 2020, Prairie Island Nuclear Generating Plant (PINGP), Unit 1 reactor automatically tripped on a spurious Power Range Negative Rate trip signal. Surveillance testing was in progress on the Nuclear Instrumentation System (NIS) Power Range Channel which placed one of the Neutron Flux Power Range bistables in trip, reducing the normal two-out-of-four trip logic to one-out-of-three trip logic.

This event is reportable under 10CFR 50.73(a)(2)(iv)(A) due to the Reactor Protection System (RPS) actuation.

There were no nuclear safety impacts. The system operated as designed and initiated an automatic reactor trip that placed the plant in a safe condition. All systems responded normally. Operations stabilized the plant without complication.

The direct cause of this event was attributed to a spurious negative rate signal of 1N41 Reactor Trip bistable during NIS Power Range Channel Calibration surveillance testing.

The corrective actions include replacement of 1N41 components as well as a design modification.



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

(See NUREG-1022, R.3 for instruction and guidance for completing this form  
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1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Prairie Island Nuclear Generating Plant, Unit 1	05000282	2020	- 001	- 00

**NARRATIVE**

**EVENT DESCRIPTION**

On August 26, 2020, Prairie Island Nuclear Generating Plant (PINGP), Unit 1 was in Mode 1 (Power Operation) at 95.2 percent power in coast down for the 1R32 Refueling Outage. Nuclear Instrumentation System (NIS) Power Range 1N42 Reactor Trip bistables were in their tripped condition for NIS Power Range Channel Calibration surveillance testing. At 1319 CDT, a spurious trip of a NIS Power Range 1N41 bistable occurred, causing an automatic trip of Unit 1 reactor.

The Nuclear Instrumentation System is an input to the Reactor Protection System (RPS) (EIS CODE: JC). The NIS functions to protect the reactor core by monitoring the neutron flux and generating appropriate trips and alarms for various phases of operating and shutdown conditions. Among other automatic trips, the NIS Power Range Channels (1N41, 1N42, 1N43, and 1N44) high negative neutron flux rate reactor trips provide protection for negative step changes in reactor power. This trip requires two-out-of-four channels coincidence exceeding the trip setpoint. Since 1N42 was in its tripped condition due to surveillance testing, the spurious trip of 1N41 made the required two-out-of-four logic that resulted in the automatic trip of Unit 1 reactor.

This event is reportable under 10CFR 50.73(a)(2)(iv)(A) due to the Reactor Protection System (RPS) actuation per NUREG 1022, Revision 3.

The event was reported to the NRC via ENS # 54859 per 10CFR 50.72(b)(2)(iv)(B) RPS Actuation (scram) and 50.72(b)(3)(iv)(A) Specified System Actuation.

**EVENT ANALYSIS**

The 1N41 Power Range Rate circuit card, Negative Rate Trip bistable card, Positive Rate Trip bistable card, Negative Rate Trip bistable relays, and Positive Rate Trip bistable relays were replaced during troubleshooting. Failure analysis on these components was performed by the vendor. No exact cause of the reactor trip could be determined based on the failure analysis of the components.

**ASSESSMENT OF SAFETY CONSEQUENCES**

There were no nuclear safety impacts. The system operated as designed and initiated an automatic reactor trip that placed the plant in a safe condition. All systems responded normally. Operations stabilized the plant without complication. Offsite Power remained available. There were no radiological, environmental, or industrial impacts associated with this event. The health and safety of the public and site personnel were not at risk at any time during this event.

**CAUSE OF THE EVENT**

The direct cause of this event was attributed to a spurious negative rate signal of 1N41 Reactor Trip bistable during NIS Power Range Channel Calibration surveillance testing.

**CORRECTIVE ACTIONS**

The 1N41 Power Range Rate circuit card, Negative Rate Trip bistable card, Positive Rate Trip bistable card, Negative Rate Trip bistable Relays, and Positive Rate Trip bistable Relays were replaced.

A design modification to eliminate NIS trip risks during surveillance testing is a planned corrective action.



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		2020	- 001	- 00

**PREVIOUS SIMILAR EVENTS**

No previous similar events have been reported to the NRC by PINGP in the prior 6 years.