



Prairie Island Nuclear Generating Plant  
1717 Wakonade Drive East  
Welch, MN 55089

MAR 04 2016

L-PI-16-019  
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 50-282  
Renewed License No. DPR-42

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

Licensee Event Report 50-282-2005-001-00 Unanalyzed Condition -- Procedures  
Credited by Appendix R Calculation not in Place

Licensee Event Report (LER) 50-282-2005-001-00 is enclosed. The LER describes a past condition for which a cold shutdown repair procedure that is credited in the 10 CFR 50 Appendix R safe shutdown analysis for the Prairie Island Nuclear Generating Plant was not in place. This condition is reported in accordance with 10 CFR 50.73(a)(2)(ii)(B) as an unanalyzed condition that significantly degrades plant safety. The appropriate plant procedure was since revised to include the credited cold shutdown repair.

Summary of Commitments

This letter contains no new commitment and no revision to an existing commitment.

Kevin Davison  
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**

**Licensee Event Report 50-282-2005-001-00  
Unanalyzed Condition -- Procedures Credited by  
Appendix R Calculation not in Place**

(4 pages follow)



**LICENSEE EVENT REPORT (LER)**  
(See Page 2 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 FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOF-10202, (3150-0104), 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	<b>2. DOCKET NUMBER</b> 05000 282	<b>3. PAGE</b> 1 OF 4
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**4. TITLE**  
Unanalyzed Condition – Procedures Credited by Appendix R Calculations not in Place

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
4	14	2005	2005	- 001	- 00	3	4	2016	Prairie Island Unit 2	05000306
									FACILITY NAME	DOCKET NUMBER
										05000

<b>9. OPERATING MODE</b> Unit 1: MODE 1 Unit 2: 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)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)
	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<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)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(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)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)
<b>10. POWER LEVEL</b> Unit 1: 100% Unit 2: 100%	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> 73.77(a)(1)
	<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)(D)	<input type="checkbox"/> 73.77(a)(2)(i)
	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 73.77(a)(2)(ii)
		<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> OTHER	Specify in Abstract below or in NRC Form 366A

**12. LICENSEE CONTACT FOR THIS LER**

<b>LICENSEE CONTACT</b> Glenn A. Carlson	<b>TELEPHONE NUMER (Include Area Code)</b> 651-267-1755
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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> <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO	<b>15. EXPECTED SUBMISSION DATE</b>	MONTH	DAY	YEAR

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

On 1/7/2016, Prairie Island Nuclear Generating Plant (PINGP) reviewed corrective actions associated with the transition to National Fire Protection Association "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants" (NFPA 805). PINGP discovered no cold shutdown repair procedure existed to restore power to train B reactor coolant system (RCS) vent valves to reduce RCS pressure in event of fire in Fire Area (FA) 59 (Auxiliary Building Mezzanine Floor Unit 1 Unit 1) and FA 74 (Auxiliary Building Mezzanine Floor Unit 2). The PINGP Appendix R safe shutdown analysis (SSA) credits such actions for train B RCS vent valves for a fire in these areas. PINGP established compensatory measures for affected equipment and, with automatic detection and suppression capability, these measures ensured protection of potentially affected equipment. The health and safety of the public was not at risk. PINGP submitted Event Notification (EN) 51642 on 1/7/2016 as this event is reportable pursuant to 10 CFR 50.72(b)(3)(ii)(B) as an unanalyzed condition that significantly degrades plant safety. On 04/14/2005, a revision of the SSA was approved that credited a cold shutdown repair as a compliance strategy for FA 59 and 74, but no repair procedure existed in the event of a fire in FA 59 nor FA 74.

On 1/11/2016, F5 Appendix D "Impact of Fire Outside Control/Relay Room" was issued and includes cold shutdown repair procedures for Train B RCS vent valves. Lack of technical rigor to ensure procedure F5 Appendix D included actions required by the SSA is the identified cause.



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

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, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), 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.

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Prairie Island	05000-282	2005	001	00

**NARRATIVE**

Event Description

On 1/7/2016, Prairie Island Nuclear Generating Plant (PINGP) reviewed corrective actions associated with the transition to National Fire Protection Association "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants" (NFPA 805) and discovered no cold shutdown repair procedure existed for train B RCS vent valves to reduce reactor coolant system (RCS) (EIS System Code AB) pressure in event of a fire in Fire Area (FA) 59 (Auxiliary Building Mezzanine Floor Unit 1) and FA 74 (Auxiliary Building Mezzanine Floor Unit 2). The PINGP Appendix R safe shutdown analysis (SSA) credits a cold shutdown repair procedure for train B RCS vent valves for a fire in these areas. This event is reportable pursuant to 10 CFR 50.73(a)(2)(ii)(B) as an unanalyzed condition that significantly degrades plant safety. PINGP submitted Event Notification 51642 on 1/7/2016.

PINGP established compensatory measures for affected areas: hourly fire watches, briefings of the operating crews and fire brigades on the impact of a fire, protecting fire detection zones, walkdowns to verify transient combustible materials were controlled according to plant procedures. Along with automatic fire detection and suppression capability, these measures ensured protection of potentially affected equipment.

On 04/14/2005, a revision of the SSA was approved that credited a cold shutdown repair for train B RCS vent valves as a compliance strategy for FA 59 and 74, but no such repair procedure existed. On 4/21/2006, PINGP discovered during a self-assessment that no cold shutdown repair procedure existed for train B RCS vent valves in event of fire in FA 59. No ENS was submitted for this discovery in 2006. A condition evaluation performed on 7/7/2006 determined "repair action is not credited until well into the shutdown scenario, the means (equipment) to perform the repair are readily available, and a similar repair is already proceduralized, the lack of a formal repair procedure in this instance isn't considered to significantly impact the ability to safely shutdown the plant for a fire in Fire Area 59."

The cause of the lack of the repair procedure is lack of technical rigor to ensure procedure F5 Appendix D "Impact of Fire Outside Control/Relay Room" included instructions to restore power to train B RCS vent valves in event of fire in FA 59 and FA 74 as credited in the SSA.

On 1/11/2016, F5 Appendix D, Revision 36, was issued and includes cold shutdown repair procedures for Train B RCS vent valves.

Event Analysis

The SSA describes that the reactor coolant vent system is provided to exhaust non-condensable gases from the reactor coolant system that could inhibit natural circulation core cooling. The vent path from the reactor vessel head and the vent path from the pressurizer each contain two normally closed, independently-powered valves in parallel and connect to a common header that discharges either to the containment atmosphere or to the Pressurizer Relief Tank (PRT). The head vent system solenoid valves are desired closed to prevent a flow diversion path from the RCS during hot standby. They may be used to vent non-condensable gases or as a letdown path for boration to achieve cold shutdown boron concentration. The RCS head vent lines are designed for RCS pressure to the second isolation valve; therefore, this flow path is not a high/low pressure interface concern. Thus, SV-37035 through SV-37040 and SV-37091 through SV-37096 are required components.

The valves used to vent the RCS through train B are SV-37036, 1 RCS Vent Sys Przr Vent Trn B SV, and SV-37040, 1 RCS Vent Sys to Cntmt Trn B SV, for Unit 1 and SV-37092, 2 RCS Vent Sys Przr Vent Trn B SV, and SV-37096, 2



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RCS Vent Sys to Cntmt Trn B SV, for Unit 2.

On 1/7/2016, PINGP reviewed corrective actions associated with transition to NFPA 805 and discovered no such procedure existed for train B RCS vent valves for a fire in FA 59 and FA 74. The PINGP SSA credits a cold shutdown repair procedure for train B RCS vent valves.

Upon further investigation, PINGP found a self-assessment on 4/21/2006 discovered that no cold shutdown repair procedure existed to restore power to train B RCS vent valves to reduce RCS pressure in event of fire in FA 59.

Safety Significance

There was no nuclear, environmental, radiological or industrial safety consequence related to this event. PINGP has procedures and controls in place to minimize the likelihood and severity of fires occurring, and a significant fire impacting the ability to safely shutdown did not occur. A scenario requiring the use of the RCS vent valve procedure would involve a significant fire of sufficient size and intensity to damage cables for both the Train A and Train B RCS Vent valves and damage the electrical cabinet where the cold shutdown repair action is credited. The cold shutdown repair action for Train B RCS vents is very similar to the previously established repair action for the Train A RCS vent solenoid valves. This repair action is credited to provide a method to depressurize the Reactor Coolant System to transition to cold shutdown. Hot standby could be maintained while the procedure was revised to repair the Train B RCS vent valves. Since this repair action is only required to achieve cold shutdown and hot standby could be maintained in the interim, and the low likelihood of a fire damaging the Train A and Train B RCS vent valves, the lack of established procedures to repair the Train B RCS Vents had a low impact on risk.

This condition was identified during the PINGP transition to NFPA 805. This was identified in the corrective action program (CAP) as an action to revise the post fire safe shutdown procedure to incorporate these additional actions for the Train B RCS vent valves.

Cause

The cause of the event is the lack of technical rigor to ensure procedure F5 Appendix D included instructions to restore power to train B RCS vent valves in event of fire in FA 59 and FA 74 as credited in the Appendix R SSA. Contributing causes are 1) Supervision determined that a Senior Reactor Operator (SRO) review was not required when the general action request (a non-CAP action request) was changed to a CAP action request and 2) Inappropriate use of management exception to extend the due dates for action requests.

Corrective Action

On 1/11/2016, F5 Appendix D, Revision 36, was issued and includes cold shutdown repair procedures for train B RCS vent valves.

Since the event date, the following measures have been put into place to address the apparent cause: improvements to the procedure review process, improvements to engineering human performance, training for PINGP supervisors and managers in Engineering, Maintenance, Procurement and Planning on the need to reinforce and observe that individual contributors are validating assumptions and ensuring high quality products with adequate technical rigor are produced.

In addition, the following actions will be taken: 1) Evaluate whether changes to the PINGP CAP are required to ensure when non-CAP action requests are converted to CAP action requests that the issues are processed as a new CAP



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action request and 2) Review all CAP action requests that have management exception and ensure they meet requirements for management exception and have a success path.

Previous Similar Events

LER 50-282-2015-001-00, "Unanalyzed Condition Due to Non-Compliance with 10 CFR 50 Appendix R," submitted 6/17/2015.

Corrective Actions:

- Procedure Change Request (PCR) 01475022 moved the step ahead in the timeline to locally verify 12 RCP breaker is OPEN and PCR 01475293 added steps to OPEN DC knife switches for all RCP breakers. Both of these actions were completed.
- Prior site training was conducted for Supervisors and Managers in Engineering, Maintenance, Procurement and Planning on need to reinforce and observe individual contributors, as they validate assumptions and to ensure that high quality products with adequate technical rigor are produced. Recurring periodicity of training will be determined by the Supervisory Leadership Development Program Curriculum Review Committee.
- The lack of technical rigor that occurred in 2005 was a legacy issue and was corrected with the implementation of the Engineering Human Performance program in 2006. This program includes applying technical rigor to verification/validation processes. Additionally, ESP receive training on engineering rigor and human performance as part of initial ESP training through FL-ESP-ORT-034L.