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L-PI-10-007
10 CFR 50.73

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

Prairie Island Nuclear Generating Plant Unit 1
Docket 50-282
License No. DPR-42

LER 1-09-08, Unanalyzed Condition due to an Inadequate Fire Barrier

Northern States Power Company, a Minnesota corporation (NSPM) herewith encloses Licensee Event Report (LER) 1-09-08. The LER describes an inadequate fire barrier that was identified during a review of Prairie Island Nuclear Generating Plant's safe shutdown compliance assessment and was previously reported in accordance with 10 CFR 50.72 on December 14, 2009.

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 1-09-08

3 Pages Follow

NRC FORM 366 (9-2007) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES: 08/31/2010

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.

LICENSEE EVENT REPORT (LER)

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

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Prairie Island Nuclear Generating Plant Unit 1	05000282	1 of 3

4. TITLE
Unanalyzed Condition due to an Inadequate Fire Barrier

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
12	14	2009	2009	– 008 –	00	02	11	2010	FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE
Mode 1

10. POWER LEVEL
100%

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

☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☑ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☑ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ OTHER
☐ 20.2203(a)(2)(vi)	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

NAME	TELEPHONE NUMBER (Include Area Code)
Kathryn Mews	651.388.1121, extension 7384

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

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

On December 14, 2009, Northern States Power Company, a Minnesota corporation (NSPM), doing business as Xcel Energy, identified that the power source to Safeguards Bus 16 was not protected per 10 CFR 50 Appendix R requirements in Fire Area (FA) 32. For a fire that occurs in FA32, fire induced damage to cable 1C-333 could cause a spurious lockout of the 1RY transformer source to Bus 16. Another source, the D2 Emergency Generator, was available to power Bus 16. However, cables affecting the operation of the D2 Emergency Generator exited a fire-protected cable tray and ran unprotected for a short distance before they exited Fire Area 32. This condition was previously reported to the NRC as an unanalyzed condition (10 CFR 50.72(b)(3)(ii)(B)) on December 14, 2009 due to the missing fire barrier.

The causal evaluation for this event determined that the apparent cause was inattention to detail and the lack of a detailed procedure to perform Appendix R circuit analysis. An hourly fire watch was previously in place for Fire Area 32 as a compensatory measure and will continue until the cable protection issue has been resolved. Cables for the credited power source to Safeguards Bus 16 will be provided the required fire protection to meet the safe shutdown requirements in National Fire Protection Association (NFPA) 805.

EVENT DESCRIPTION

On December 11, 2009, Unit 1 was operating at 100 percent power. It was identified that fire induced damage to cable 1C-333 in FA32 could cause a spurious lockout of the 1RY transformer[1], the alternate offsite power source to Safeguards Bus 16[2], which is credited to power equipment required to achieve safe shutdown in the event of a fire in Fire Area (FA) 32. Prior to this time, cable 1C-333 was not included in the FA32 analysis. It was noted that cables for the D2 emergency diesel generator[3] are also routed though FA32, but the tray that they are routed through is protected with a thermal shield as approved in a NRC fire protection safety evaluation report dated May 4, 1983. Therefore a temporary procedure change was initiated to credit the D2 emergency diesel generator as a source to Bus 16.

On December 14, 2009 it was identified that cables for the D2 Emergency Diesel Generator exit the protected tray and run through the ceiling unprotected for approximately four feet in FA32. An automatic wet pipe sprinkler system is installed in the area with fire detection but there is not twenty feet free of intervening combustibles between the redundant power supplies to Bus 16 in FA32 as required by 10 CFR 50 Appendix R Section III.G.2.b. Because the required degree of separation between power supplies to Bus 16 and the redundant safeguards train (Bus 15) was found to be missing, an 8-hour report (event number 45567) was made in accordance with 10 CFR 50.72.

EVENT ANALYSIS

Fire induced cable damage to cable 1C-333 in FA32 could cause a spurious lockout of the 1RY transformer, the alternate offsite power source to Safeguards Bus 16, which is credited to power equipment required to achieve safe shutdown in the event of a fire in FA32. Because a fire in FA32 could damage cables for Bus 16 and Bus 15, both trains of safe shutdown equipment, this condition is reportable as an unanalyzed condition under 10 CFR 50.73(a)(2)(ii)(B).

Without compensatory measures in place, this condition could have resulted in a loss of safety function (equipment required to achieve safe shutdown) in the event of a fire. Consequently, this event is reportable per 10CFR 50.73(a)(2)(v)(A) as a Safety System Functional Failure.

SAFETY SIGNIFICANCE

The unprotected condition of 1C-333 could have affected the credited offsite power source to Bus 16. Bus 16 is credited to power equipment required to achieve safe shutdown for Unit 1 in the event of a fire in FA32. A fire in FA32 could damage cables for both trains of safe shutdown equipment. FA32 has fire detection and an automatic wet pipe fire suppression system.

No fire occurred and there was no actual consequence to the public as a result of this unanalyzed condition.

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[1] EIIS System Code: FK
[2] EIIS System Code: EB
[3] EIIS System Code: EK

CAUSE

The Appendix R circuit analysis package did not include the sudden pressure switch trip (1C-333 cable) due to inattention to detail and the lack of a detailed procedure to perform Appendix R circuit analysis. A contributing cause was that the sudden pressure trip switch is a unique feature of the offsite power transformers; most other 4KV breakers do not have a sudden pressure trip switch. However, there are several 4KV load breaker circuit analysis packages that could have been referenced when performing the circuit analysis.

CORRECTIVE ACTION

An hourly fire watch was previously in place for Fire Area 32 as a compensatory measure and will continue until the cable protection issue has been resolved.

A procedure for Appendix R circuit analysis will be implemented. The procedure will include examples such as the unique feature of the offsite power transformers.

The site is transitioning to National Fire Protection Association (NFPA) 805, which is a performance-based, risk-informed licensing basis for fire protection. NFPA 805 endorses the use of state-of-the-art fire modeling techniques and fire probabilistic risk assessment to determine the best solution to properly protect safe shutdown capability. Cables for the credited power source to Bus 16 will be provided the required fire protection to meet the safe shutdown requirements in NFPA 805.

PREVIOUS SIMILAR EVENTS

A review of the site's Corrective Action Program found two instances where cables were not included in their respective analysis fire areas. However, the equipment that the cables supported was not relied upon to be free of fire damage in those particular fire areas.

A review of LERs for Unit 1 and Unit 2 since 2006 identified LER 1-07-02 and LER 1-09-01 as being related to Appendix R non-compliance. These LERs reported unanalyzed conditions for fire areas due to non-compliance with Appendix R in the use of operator manual actions.