



Northern States Power Company

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August 26, 1992

10 CFR Part 50
Section 50.73

800

U S Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

PRAIRIE ISLAND NUCLEAR GENERATING PLANT
Docket Nos. 50-282 License Nos. DFR-42
50-306 DPR-60

Inadequate Testing of 4KV Safeguards Bus Automatic Source Breaker
Trip Feature Identified During Operating Experience Assessment.

The Licensee Event Report for this occurrence is attached.

Please contact us if you require additional information related to this event.

for *Monica Vik*
Thomas M Parker
Manager - Nuclear Support Services

c: Regional Administrator - Region III, NRC
NRR Project Manager, NRC
Senior Resident Inspector, NRC
State of Minnesota
Attn: Kris Sanda

Attachment

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LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-330), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)		DOCKET NUMBER (2)	PAGE (3)
PRAIRIE ISLAND NUCLEAR GENERATING PLANT UNIT 1		0 5 0 0 0 2 8 2	1 OF 0 1 5

TITLE (4) Inadequate Testing of 4KV Safeguards Bus Automatic Source Breaker Trip Feature Identified During Operating Experience Assessment

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)		
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES		DOCKET NUMBER(S)
07	27	92	92	009	00	08	26	92	Prairie Island Unit 2		05000306
											05000

OPERATING MODE (9)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 50. (Check one or more of the following) (11)										
POWER LEVEL (10) 1 0 0	N	20.402(b)		20.405(e)		50.73(a)(2)(iv)		73.71(b)			
		20.405(a)(1)(i)		50.38(a)(1)		50.73(a)(2)(v)		73.71(c)			
		20.405(a)(1)(ii)		50.38(a)(2)		50.73(a)(2)(vi)		OTHER (Specify in Abstract below and in Text, NRC Form 305A)			
		20.405(a)(1)(iii)	XX	50.73(a)(2)(i)		50.73(a)(2)(viii)(A)					
		20.405(a)(1)(iv)		50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)					
	20.405(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(ix)						

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
Arne Hunstad, Staff Engineer	6 1 1 2 3 8 8 - 1 1 1 2 1 1

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)

YES NO (15)

EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR

ABSTRACT (Limit to 1400 words, i.e., approximately fifteen single-space typewritten lines) (16)

As a result of detailed examination of the Emergency Power System Technical Specifications conducted during the Operating Experience Assessments of Kewaunee Licensee Event Report 92-011 and NRC Information Notice 92-40, "Inadequate Testing of Emergency Bus Undervoltage Logic Circuitry", it was identified on July 27, 1992 that a portion of the surveillance test requirements specified in Section 4.6.A.3.b.1, and the associated bases for Section 4.6 had not been completed within the required time frame. Since a portion of the required surveillance testing for Unit 1 4160V safeguards bus 16 was not completed within the required surveillance interval plus 25%, Unit 1 4160V safeguards bus 16 was declared inoperable at 1600 on July 27, 1992. Unit 2 4160V bus 26 exceeded its 18 month surveillance interval plus 25% on August 5, 1992.

A Temporary Waiver of Compliance from safeguards bus test requirements was requested and approved verbally by NRC on July 27, 1992. The written request for Temporary Waiver of Compliance was provided NRC on July 29, 1992, and NRC approval was granted on August 5, 1992. A License Amendment Request for a one-time extension of the surveillance test interval for periodic testing of the source breaker trip feature was made on August 3, 1992, and granted NRC approval on August 11, 1992.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST, 60.6 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (F-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
Prairie Island Nuclear Plant Unit 1	0 5 0 0 0 2 8 2 9 2	-	0 0 9	-	0 0	0 2 OF 0 5

TEXT (If more space is required, use additional NRC Form 366A's) (17)

EVENT DESCRIPTION

As a result of detailed examination of the Emergency Power System Technical Specifications conducted during the Operating Experience Assessments of Kewaunee Licensee Event Report 92-011 and NRC Information Notice 92-40, "Inadequate Testing of Emergency Bus Undervoltage Logic Circuitry", it was identified on July 27, 1992 that a portion of the surveillance test requirements specified in Section 4.6.A.3.b.1, and the associated bases for Section 4.6 had not been completed within the required time frame. Since a portion of the required surveillance testing for Unit 1 4160V safeguards bus 16 was not completed within the required surveillance interval plus 25%, Unit 1 4160V safeguards bus 16 was declared inoperable at 1600 on July 27, 1992. Unit 2 4160V bus 26 exceeded its 18 month surveillance interval plus 25% on August 5, 1992.

Section 4.6.A.3.b.1 of the Prairie Island Technical Specifications requires verification that the simulation of a loss of offsite power in conjunction with a safety injection signal will result in the de-energization of the emergency buses and load shedding from the emergency buses. The bases for Section 4.6 state that this test will demonstrate that the emergency power system and the control systems for the engineered safeguards equipment will function automatically in the event of loss of all other sources of a-c power, and that the diesel generators will start automatically in the event of a loss-of-coolant accident. The bases further state that this test will demonstrate proper tripping of motor feeder breakers, main supply and tie breakers on the affected bus, and sequential starting of essential equipment, as well as the operability of the diesel generators.

During each refueling outage the integrated safety injection test has been used to fulfill the requirements of Technical Specification 4.6.A.3.b.1. The integrated safety injection test simulates a loss of off-site power by directing an operator to manually open the supply breaker to the safeguards bus. This method of tripping the source breakers from the safeguards buses was used in the pre-operational test of the diesel generators and during each subsequent integrated safety injection test.

However, the integrated safety injection test does not demonstrate the full capability of the undervoltage trip feature to automatically de-energize the safeguards buses upon a loss of power as specified in the bases for Technical Specification Section 4.6. The testing performed during the integrated safety injection test does not demonstrate proper tripping of the main supply and tie breakers on the affected 4160V safeguards bus. All other requirements of Technical Specification 4.6.A.3.b.1 are fulfilled by the integrated safety injection test.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Prairie Island Nuclear Plant Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 2 8 2	LER NUMBER (6)			PAGE (3)	
		YEAR 9 2	SEQUENTIAL NUMBER - 0 0 9	REVISION NUMBER - 0 0 0	3	OF 5

TEXT (If more space is required, use additional NRC Form 366A's) (17)

Electrical preventive maintenance is performed on one of the two 4160V safeguards buses during each refueling outage, while the refueling cavity is flooded. Prior to restoring the bus, a separate surveillance procedure is performed to functionally check the voltage restoration scheme. During this test, the tripping of the source breakers (main supply and tie breakers) is verified during a bus undervoltage. This surveillance test was performed as part of the maintenance testing prior to bus restoration and was not intended to supplement Technical Specification requirements (as interpreted at the time). However, it does have sufficient overlap with the integrated safety injection test to satisfy the Technical Specification requirements in Section 4.6.A.3.b.1 and its bases. This test is performed every other refueling outage, rather than each refueling outage (or 18 month) frequency as required by Technical Specification 4.6.A.3.b.1. Testing on Unit 1 4160V bus 16 was last performed on February 20, 1990. Testing on Unit 2 4160V bus 26 was last performed on September 20, 1990.

A Temporary Waiver of Compliance from safeguards bus test requirements was requested and approved verbally by NRC on July 27, 1992. The written request for Temporary Waiver of Compliance was submitted to the NRC on July 29, 1992, and written NRC approval was granted on August 5, 1992. An Emergency License Amendment Request for a one-time extension of the surveillance test interval for periodic testing of the source breaker trip feature was submitted to the NRC on August 3, 1992. The Emergency License Amendment was approved by the NRC on August 11, 1992.

CAUSE OF THE EVENT

Personnel error in not correctly interpreting the requirements stated in Technical Specification 4.6.A.3.b.1 and associated bases.

ANALYSIS OF THE EVENT

Portions of the load reject/voltage restoration scheme are tested frequently. The undervoltage and degraded voltage relay setpoint calibration is verified on a monthly basis. Also on a monthly basis, under a separate surveillance, the emergency diesel generators are started, synchronized to the safeguards bus and the load sequencing portion of the scheme is tested. This normal monthly surveillance testing verifies operability of the majority of the load reject/voltage restoration scheme components.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)	
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Prairie Island Nuclear Plant Unit 1	0 5 0 0 0 2 8 2 9 2	—	0 0 9	—	0 0	0 4 OF 0 5

TEXT (if more space is required, use additional NRC Form 366A's) (17)

As stated previously, electrical preventive maintenance is performed on one of the two 4160V safeguards buses during each refueling outage. Prior to restoring the bus, a separate surveillance procedure is performed to functionally check the voltage restoration scheme. During this test, the tripping of the source breakers (main supply and tie breakers) is verified during a bus undervoltage. This preventive maintenance program has been in place since 1977. Based on the every other refueling outage schedule, verification of the tripping of the 4160V bus source breakers has been performed on a frequency ranging from approximately 24 months early in plant life to as much as 34 months for the most recent cycles.

No problems affecting operability have been identified with the voltage restoration logic during the performance of the preventive maintenance described above. This testing and maintenance demonstrates the reliability of the voltage restoration logic and the relays in question and provides a high degree of assurance that the relays are operable and will remain operable until they can be tested during the two-unit outage scheduled to begin in October 1992.

This event is considered a violation of the Prairie Island Technical Specifications since a portion of the surveillance test requirements specified in Technical Specification Section 4.6.A.3.b.1, and the associated bases for Section 4.6 had not been completed within the required time frame. Because this event involved a violation of Technical Specifications, it is reportable pursuant to 10 CFR Part 50, Section 50.73(a)(2)(1)(B).

CORRECTIVE ACTION

A verbal Temporary Waiver of Compliance to Technical Specification Surveillance Requirement 4.6.A.3.b.1 was obtained from the NRC Staff at 2025 on July 27, 1992.

An amendment to the facility operating licenses was obtained to provide a one-time extension of the surveillance test interval for periodic testing of the source breaker trip feature.

Affected relays are being visually inspected monthly while the license amendment is in effect.

The 4160V safeguards bus voltage restoration scheme surveillance test procedures for both trains on each unit will be revised, as necessary, to reflect all the requirements of Technical Specification 4.6.A.3.b.1.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST, 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (F-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, ATTENTION TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Prairie Island Nuclear Plant Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 2 8 2 9 2	LER NUMBER (6)			PAGE (3)	
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TEXT (If more space is required, use additional NRC Form 366A's) (17)

The Surveillance Schedule will be revised to implement the 18-month testing interval for both trains of each unit.

Should either unit be taken to cold shutdown for other reasons, the incomplete portions of the testing required by Specification 4.6.A.3.b.1 will be completed on the affected unit prior to returning that unit to power operation.

FAILED COMPONENT IDENTIFICATION

None.

PREVIOUS SIMILAR EVENTS

A previous similar event was reported as Prairie Island Unit 1 LER 92-004.