Northern States Power Company

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July 15, 1992

10 CFR Part 50
Section 50.73

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

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

Design Basis Reconstitution Effort Identified a Condition Outside the Plant Design Basis

The Licensee Event Report for this occurrence is attached.

This event was reported via the Emergency Notification System in accordance with 10 CFR Part 50, Section 50.72, on June 15, 1992. Please contact us if you require additional information related to this event.

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

IE22 1/1

NRC FORM 366 (6-89) U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

APPROVED OMB NO. 3150-0104
EXPIRES: 4/30/92

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-630), 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 3

TITLE (4)

Design Basis Reconstitution Effort Identified a Condition Outside the Plant Design Basis

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)
0 6	1 5	9 2	9 2	—	0 0 7	— 0 0	0 7	1 5	9 2	Prairie Island Unit 2	0 5 0 0 0 3 0 6
											0 5 0 0 0

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)					
POWER LEVEL (10)	1 0 0	20.402(b)		20.405(c)		50.73(a)(2)(iv)	73.71(b)
		20.405(a)(1)(i)		50.36(c)(1)		50.73(a)(2)(v)	73.71(c)
		20.405(a)(1)(ii)		50.36(c)(2)		50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
		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)(x)	

LICENSEE CONTACT FOR THIS LER (12)

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

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)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	XX NO				

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

On June 15, 1992 a condition was identified that is considered outside the design basis. This condition was discovered during the Design Basis Reconstitution effort. Specifically, a design deficiency exists that results in inadequate tornado missile protection for D1 Diesel Generator Room.

The diesel generators are housed in the Service Building, the outer wall of which is a Design Class III structure. The outer wall is not designed for tornado loading. The physical arrangement of the Service Building is such that walls and other interferences would likely intercept a tornado-borne missile before it reached the diesel generator rooms. However, a missile entering the Service Building personnel door would encounter no interference in its path to the door for D1 Diesel Generator Room. The potential missile path presents only a very small zone of vulnerability.

Interim missile protection has been provided.

EVENT DESCRIPTION

On June 15, 1992 a condition was identified that is considered outside the design basis. This condition was discovered during the Design Basis Reconstitution effort. Specifically, a design deficiency exists that results in inadequate tornado missile protection for D1 Diesel Generator Room.

The diesel generators are housed in the Service Building, the outer wall of which is a Design Class III structure. The outer wall is not designed for tornado loading. The physical arrangement of the Service Building is such that walls and other interferences would likely intercept a tornado-borne missile before it reached the diesel generator rooms. However, a missile entering the Service Building personnel door near the D1 Diesel Generator Room would encounter no interference in its path to the door for D2 Diesel Generator Room. The potential missile path presents only a very small zone of vulnerability.

The original missile design criterion was that no single missile could render both diesel generators inoperable (i.e., component separation and redundancy could be used as missile protection). Based on this criterion, design review determined that the missile protection provided for the diesel generators was adequate. The doors for the diesel generator rooms are Design Class III, and are not designed for missiles. The final structural design provided a labyrinth wall outside the entrance door for the D2 Diesel Generator Room, but not for D1.

The Final Safety Analysis Report reflects a revision to the missile protection criteria such that a single failure must also be considered following the initiating event. However, the new criteria were apparently not applied to the diesel generator rooms at that time. Under the new criteria, without missile protection for the D1 Diesel Generator Room door, it must be assumed that a tornado could cause a loss of offsite power and would disable D1 Diesel Generator. A single failure in D2 Diesel Generator could then cause loss of all AC power and render both safe shutdown trains inoperable.

Interim missile protection outside the affected Service Building door was provided following discovery of the condition.

CAUSE OF THE EVENT

The Final Safety Analysis Report reflects a revision to the missile protection criteria such that a single failure must also be considered following the initiating event. However, the new criteria were apparently not applied to the diesel generator rooms at that time.

ANALYSIS OF THE EVENT

This event is reportable pursuant to 10CFR50.73(a)(2)(ii)(B) since it is considered outside the design basis of the plant. This event was verbally reported on June 15, 1992 pursuant to 10CFR50.72(b)(1)(ii)(B).

D1 Diesel Generator Room was found to be susceptible to a missile that penetrates the Service Building door and the D1 Diesel Generator Room door. Thus, a tornado could cause a loss of offsite power and could disable D1 Diesel Generator. A single failure in D2 Diesel Generator could then cause loss of all AC power and render both safe shutdown trains inoperable.

The immediate corrective actions taken (below) are deemed adequate to satisfy the design basis requirements.

CORRECTIVE ACTION

Interim missile protection was provided following discovery of the condition. Large concrete barriers were placed outside the affected Service Building door.

A walkdown was performed in the area near the Service Building entrance and potential missile hazards were removed. A memorandum was issued to all plant personnel discussing the need to maintain the affected area clear of potential missiles. The tornado hazard site walkdown surveillance procedure will be revised to include the area of concern.

An engineering analysis will be performed to justify the as-built configuration or recommend further corrective action.

FAILED COMPONENT IDENTIFICATION

None.

PREVIOUS SIMILAR EVENTS

There have been other events identified through the Design Basis Reconstitution effort, but none affecting diesel generators.