



Northern States Power Company

414 Nicollet Mall
Minneapolis, Minnesota 55401-1927
Telephone (612) 330-5500

April 27, 1992

10 CFR Part 50
Section 50.73

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

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

Design Basis Reconstitution Effort Identified a
Condition Outside 10 CFR Part 50 Appendix R Requirements

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 March 26, 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

010015

9205010103 920427
PDR ADOCK 05000282
S PDR

Handwritten initials/signature

LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN: WRITE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH, 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 Generating Plant Unit 1** DOCKET NUMBER (2) **05000282** PAGE (3) **1 OF 6**

TITLE (4) **Design Basis Reconstitution Effort Identified a Condition Outside 10 CFR Part 50 Appendix R Requirements**

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)
03	26	92	92	005	00	04	27	92	PINGP Unit 2	06000306
										05000

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5. (Check one or more of the following) (11)

OPERATING MODE (9) N	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10) 100	20.405(a)(1)(i)	50.38(e)(1)	50.73(a)(2)(iv)	73.71(c)
	20.405(a)(1)(ii)	50.38(e)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
	20.405(a)(1)(iii)	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 **Arne A Hunstad, Sr Production Engineer** TELEPHONE NUMBER **612388-1121**

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE) NO XX

EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR

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

On March 26, 1992 a condition was identified that is considered outside the 10 CFR Part 50, Appendix R, requirements. This condition was discovered during the Design Basis Reconstitution effort. Specifically, a design deficiency exists which could result in a loss of cooling water (i.e., service water) flow in the event of a catastrophic fire in the Control Room. This situation was not previously identified in system reviews, or accounted for in the Control Room fire response procedures.

A hot short (positive wire) may be postulated to occur during a Relay Room fire that would continuously energize the shutdown Relay for No. 12 Diesel-Driven Cooling Water Pump. The result of that would be that the pump would not start.

Corrective actions are in place.

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 Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 2 8 2 9 2 — 0 0 5 — 0 0 0 2 OF 0 6	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			

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

EVENT DESCRIPTION

On March 26, 1992 a condition was identified that is considered outside the 10 CFR Part 50, Appendix R, requirements. This condition was discovered during the Design Basis Reconstitution effort. Specifically, a design deficiency exists which could result in a loss of cooling water (i.e., service water) flow in the event of a catastrophic fire in the Control Room. This situation was not previously identified in system reviews, or accounted for in the Control Room fire response procedures.

10 CFR Part 50, Appendix R, states the requirements for a Fire Protection program for nuclear plants operating prior to January 1, 1979. Prairie Island is one of those plants. Section I, "Introduction and Scope," (for equipment necessary to establish and maintain hot shutdown) states:

"one train of equipment necessary to achieve hot shutdown from either the control room or emergency control stations(s) must be maintained free of fire damage by a single fire, including an exposure fire."

10 CFR Part 50, Appendix R, Section III.L, specifies the required functions of the alternate and dedicated shutdown systems. Subsection L.2.e states:

"the supporting functions shall be capable of providing the process cooling, lubrication, etc., necessary to permit the operation of the equipment used for safe shutdown functions."

At Prairie Island, the Cooling Water System meets this criterion, and thus must be available during and after a fire.

For a Control Room or Relay Room fire, the response procedure requires operators to ensure that No. 12 Diesel-Driven Cooling Water Pump (DDCLP) is operating and the cooling water header is pressurized (i.e., there are no mis-positioned valves).

The following table and attached figure (simplified version of the electrical control schematic) is useful for the following discussion:

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 (F530), 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 Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 2 8 2 9 2 - 0 0 5 - 0 0 0 3 OF 0 6	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		

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

No. 12 DDCLP Operating Circuit Devices

5 (SDR)	Shutdown Relay
15/[28240]	Speed Sensing Relay Contact; closed at greater than 400 RPM
2-1/TDR-15 sec	15 second timer relay; remains energized for 15 seconds after a shutdown signal is received
65S/(RS)	Fuel Rack solenoid; when energized it isolates the fuel supply to the diesel engine

As previously discussed, an operator is required to verify that No. 12 Diesel-Driven Cooling Water Pump is operating in this scenario. If the pump is not operating, the operator would start the pump manually per the procedure. A hot short (positive wire) may be postulated to occur during Relay Room fire in one of the locations identified on the attached diagram, continuously energizing the Shutdown Relay (5). When Relay 5 is continuously energized, the circuitry will shut off the engine fuel (i.e., shut down the diesel) whenever the engine speed is greater than 400 rpm. When diesel speed is greater than 400 rpm, contact 15/[28240] is closed energizing relay 15X/SR. This energizes the 2-1/TDR-15 sec relay which closes a contact to energize the fuel rack solenoid, resulting in a loss of fuel supply to the diesel. Relay 2-1 will remain energized for 15 seconds after the shutdown signal is received, allowing the diesel engine to coast down.

At less than 400 rpm, contact 15/[28240] is open de-energizing relay 15X/SR, and after 2-1/TDR-15 de-energizes, the fuel supply to the diesel engine is on-line and air start solenoid valves open. The engine would then attempt to start; however, upon reaching 400 RPM, the engine would again shut down. This could continue until the air supply is exhausted.

CAUSE OF THE EVENT

The basic cause of this event stems from a potential circuit failure mode that was not recognized during development and implementation of the Appendix R program.

LICFNSEE EVENT REPORT (LER)
EXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO ASSEMBLY WITH THIS INFORMATION COLLECTION REQUEST. PLEASE 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.

FACILITY NAME (1) Prairie Island Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 2 8 2 9 2	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		0 0 5	0 0	0 0	0 4	OF 0 6

* If more space is required, use additional NRC Form 365A's (17)

ANALYSIS OF THE EVENT

This event is reportable pursuant to 10 CFR Part 50, Section 50.73 (a)(2)(ii) as it is considered outside the design basis for compliance with 10 CFR 50, Appendix R. This event was verbally reported on March 26, 1992 pursuant to 10 CFR Part 50, Section 50.72 (b)(1)(ii).

CORRECTIVE ACTION

Immediate Corrective Actions:

A temporary procedure was issued to provide instructions for the operator to remove the fuses (e.g., the 10 amp fuses shown on the attached figure) at the appropriate DC Panel for No. 12 Diesel-Driven Cooling Water Pump Control Panel. (If an auto-start signal were to be initiated, an overcranking relay would prevent depletion of the starting air inventory prior to removal of the fuses.) A fuse puller is staged at the appropriate DC panel. The procedure already provides instructions for manually starting No. 12 Diesel-Driven Cooling Water Pump (if necessary). An in-line switch is available in the circuit; however, it is installed for maintenance purposes only. It is considered easier and more convenient for the operator to remove the fuses.

Long Term Corrective Actions:

1. The Control Room evacuation procedure will be revised to include the actions identified in the temporary procedure regarding fuse removal. This is considered satisfactory based on the following:
 - a. The fuse panel is readily accessible,
 - b. The fuses are clearly identified in the panel,
 - c. The fuse panel has sufficient space to permit ready/easy access for pulling fuses,
 - d. Emergency lighting is available for the fuse panel (actions are being added to the emergency lighting surveillance procedure to periodically verify the adequacy of this lighting),
 - e. A fuse puller is staged at the fuse panel,

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 Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 2 8 2	LER NUMBER (6)			PAGE (3)	
		YEAR 92	SEQUENTIAL NUMBER 005	REVISION NUMBER 00	05	OF 06

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

- f. The operators are trained and experienced in removing/pulling fuses.
- g. Similar actions were found satisfactory for the pressurizer power-operated relief valves. (Reference NRC Inspection Reports 50-282/88013 and 50-306/88013.)

2. A complete review of the Appendix R program is in progress as part of the Design Basis Reconstitution effort. Any other discrepancies will be identified and resolved through this program.

FAILED COMPONENT IDENTIFICATION

None.

PREVIOUS SIMILAR EVENTS

Unit 1 Licensee Event Report Numbers 92-002 and 92-006 document similar deficiencies discovered during Design Basis Reconstitution of the Appendix R program. These items were all identified and addressed in a review of the capability of achieving hot shutdown with a fire in the Control Room. Several circuits and reactor coolant system and secondary boundaries were evaluated during this review. Although the Design Basis Reconstitution of the Appendix R program is not yet complete, it is believed that most major issues have been identified and addressed.

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 NAA (1)

DOCKET NUMBER (2)

LER NUMBER (6)

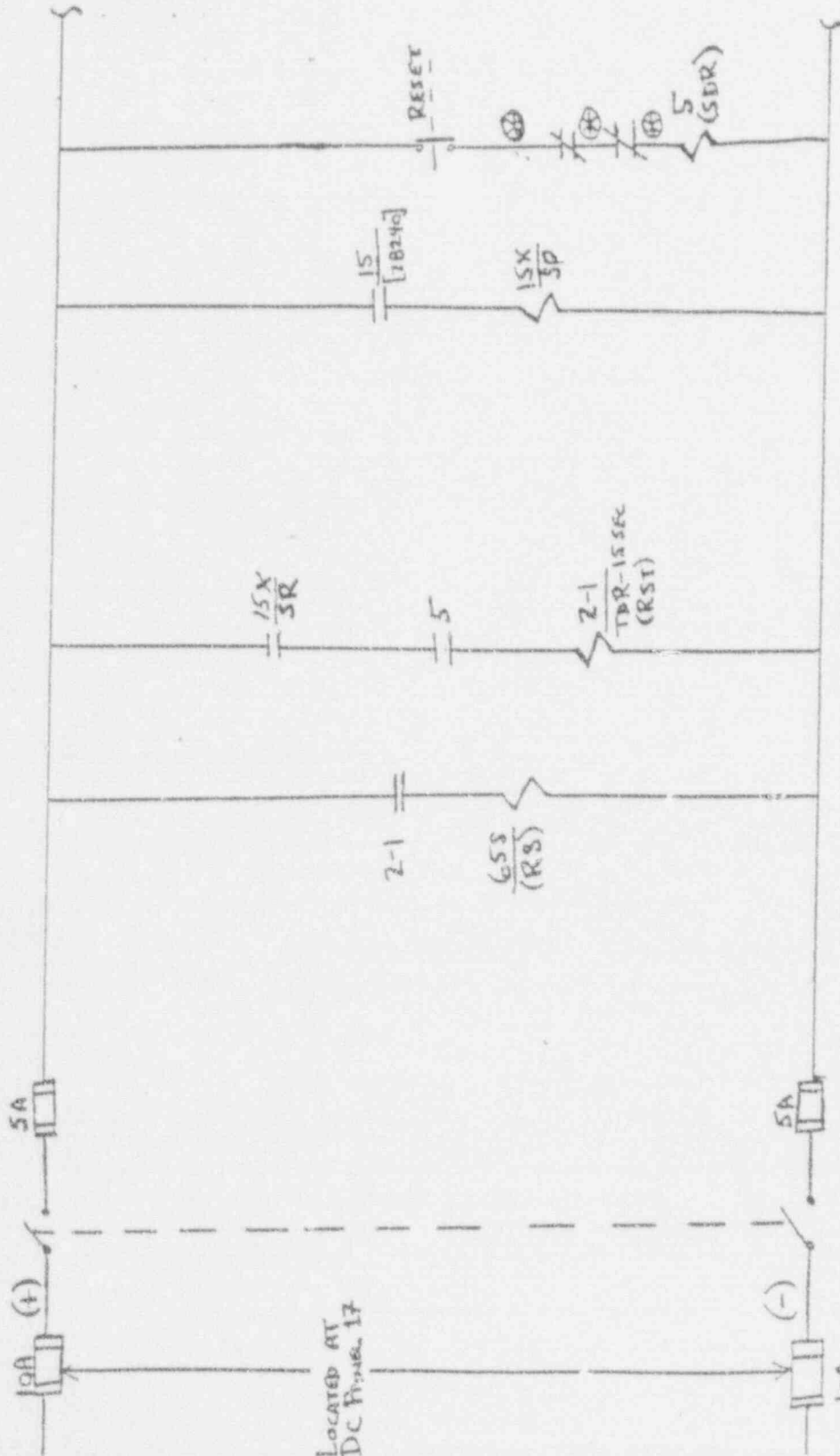
PAGE (3)

Prairie Island Unit 1

0 5 0 0 0 2 8 2

YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
91	2	005	000	6	OF 016

TEXT (If more space is required, use additional NRC Form 386A (1) (17))



⊗ WIRES OF CONCEPT; LOCATED IN RELAY ROOM