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October 10, 1990

10 CFR Part 50
Section 50.73

Director of Nuclear Reactor Regulation
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

Automatic Start of a Turbine-Driven Auxiliary Feedwater Pump
Due to Personnel Oversight in Performing Unit Shutdown Procedure

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 September 10, 1990. Please contact us if you require additional information related to this event.

for Thomas M Parker
Manager
Nuclear Support Services

c: Regional Administrator - Region III, NRC
NRR Project Manager, NRC
Senior Resident Inspector, NRC
MPCA
Attn: Dr J W Ferman

Attachment

IE22
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NRC FORM 366 (5-89) | 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-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)	DOCKET NUMBER (2)	PAGE (3)
PRAIRIE ISLAND NUCLEAR GENERATING PLANT UNIT 2	0 5 0 0 0 3 0 6	1 OF 0 3

TITLE (4): Automatic Start of a Turbine-Driven Auxiliary Feedwater Pump Due to Personnel Oversight in Performing Unit Shutdown Procedure

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 5 0 0 0
0 9	1 0	9 0	9 0	0 0 5	0 0	1 0	1 0	9 0		0 5 0 0 0

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
N		20.402(b)	20.405(c)	XX 50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10)	0 0 0	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)	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 A 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 September 10, 1990 Unit 2 was in hot shutdown, being readied for a refueling shutdown. Steam generator level control was being transferred from the main feedwater system to the auxiliary feedwater system per the normal shutdown procedure. Auxiliary feedwater pumps are normally used during unit startup and shutdown operations. No. 21 Motor-Driven Auxiliary Feedwater Pump was running, supplying feedwater to the steam generators, as was one main feedwater pump. When the main feedwater pump was shut down at 2020, No. 22 Turbine-Driven Auxiliary Feedwater Pump started automatically. The automatic start occurred because the selector switch for No. 22 Turbine-Driven Auxiliary Feedwater Pump was not in the position called for by the shutdown procedure. This was a non-ESF actuation of ESF equipment.

Cause of the event was a personnel oversight. The shutdown procedure calls for moving the selector switch for No. 22 Turbine-Driven Auxiliary Feedwater from AUTO to SHUTDOWN AUTO before taking the last main feedwater pump out of service; this switch position, used at shutdown, defeats the automatic auxiliary feedwater pump start from "both main feedwater pumps off."

EVENT DESCRIPTION

On September 10, 1990 Unit 2 was in hot shutdown, being readied for a refueling shutdown. Steam generator level control was being transferred from the main feedwater system to the auxiliary feedwater system (EIIS System Identifier BA) per the normal shutdown procedure. Auxiliary feedwater pumps (EIIS Component Identifier P) are normally used during unit startup and shutdown operations. No. 21 Motor-Driven Auxiliary Feedwater Pump was running, supplying feedwater to the steam generators, as was one main feedwater pump.

At this time several surveillance procedures associated with the refueling outage were being performed. These included full flow tests of both auxiliary feedwater pumps. Some of these tests placed heat demands on the reactor coolant system which reduced average reactor coolant system temperature. In order to maintain the desired reactor coolant system temperature, certain evolutions were stopped and restarted, including the full flow tests of both auxiliary feedwater pumps. It was necessary for the operators to repeat portions of the integrated unit shutdown procedure several times.

Leakage of main feedwater through the feedwater control valves was also believed to be a contributor to the heat demands. In an effort to maintain reactor coolant system temperature, the main feedwater pump was shut down at 2020. No. 22 Turbine-Driven Auxiliary Feedwater Pump started automatically when the main feedwater pump was shut down.

The automatic start occurred because the selector switch for No. 22 Turbine-Driven Auxiliary Feedwater Pump was not in the position called for by the shutdown procedure. When the main feedwater pump was stopped, the need to place the selector switch in the SHUTDOWN AUTO position was overlooked. This was a non-ESF actuation of ESF equipment.

CAUSE OF THE EVENT

Cause of the event was a personnel oversight.

Each turbine-driven auxiliary feedwater pump is operated from the control board using an AUTO/MANUAL/SHUTDOWN AUTO selector switch and a START/NORMAL/STOP control switch. When the selector switch is in AUTO with the control switch in NORMAL, the pump starts automatically on the following signals:

- A low-low level in either steam generator

- An undervoltage condition on the main feedwater pump buses

- A safety injection signal

- A trip of both main feedwater pumps (breakers open)

- An AMSAC signal

When the selector switch is in the SHUTDOWN AUTO position, the auxiliary feedwater pump start signal from "both main feedwater pumps tripped" is blocked.

The shutdown procedure calls for moving the selector switch for No. 22 Turbine-Driven Auxiliary Feedwater Pump from AUTO to SHUTDOWN AUTO before taking the last main feedwater pump out of service. When the main feedwater pump was stopped, the need to place the selector switch in the SHUTDOWN AUTO position was overlooked.

The testing and procedural evolutions underway at the time of this event are contributing factors to the operator oversight.

ANALYSIS OF THE EVENT

Auxiliary feedwater pumps are routinely used during startup and shutdown operations. Since No. 22 Turbine-Driven Auxiliary Feedwater Pump responded as designed during this event, there was no effect on the health and safety of the public.

Since this event resulted in an unplanned automatic start of an ESF component, it is reportable pursuant to 10CFR50.73(a)(2)(iv).

CORRECTIVE ACTION

This report will be reviewed by the operations staff.

FAILED COMPONENT IDENTIFICATION

None.

PREVIOUS SIMILAR EVENTS

There have been no previous similar events reported at Prairie Island.