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FACIL:50-263 Monticello Nuclear Generating Plant, Northern States 05000263
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RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 89-022-00:on 890920,failure of ESW pumps to auto start on transfer to 1AR transformer due to design error.
W/8 ltr.

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October 20, 1989

Report Required by:
10 CFR Part 50,
Section 50.73

U S Nuclear Regulatory Commission
Attn: Document Control Desk
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MONTICELLO NUCLEAR GENERATING PLANT
Docket No. 50-263 License No. DPR-22

Failure of Emergency Service Water Pumps to Auto Start
on Transfer to 1AR Transformer Due to Design Error

The Licensee Event Report for this occurrence is attached.

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

Thomas M Parker
Manager
Nuclear Support Services

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

IE22
1/1

NRC FORM 366 (6-89)

U.S. NUCLEAR REGULATORY COMMISSION

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

ESTIMATED BURDEN PER RESPONSE TO COMPLY WTH 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.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Monticello Nuclear Generating Plant	0 5 0 0 0 2 6 3	1 OF 0 3

TITLE (4) Failure of Emergency Service Water Pumps to Auto Start on Transfer to 1AR Transformer Due to Design Error

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 9	2 0	8 9	8 9	0 2 2	0 0	1 0	2 0	8 9		0 5 0 0 0
										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)	0 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)	XX 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
Suzanne K Peterson, System Engineer	6 1 2 — 2 9 5 - 1 2 1 3

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

CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	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 20, 1989, with the plant in cold shutdown, engineers discovered that the #13 and #14 Emergency Service Water (ESW) pumps do not automatically start upon essential bus transfer to the emergency offsite power transformer (1AR). If this event occurred coincident with an ECCS initiation, power to the normal Service Water pumps would have been lost resulting in no cooling water for the RHR and HPCI room coolers, the RHR and Core Spray pump motor coolers and the Control Room Ventilation system.

The control logic was changed to provide a pump auto start feature upon transfer to 1AR. A review of 1AR loads will be completed prior to start-up to assure all emergency loads required to be powered by 1AR have appropriate auto initiation features in their control logic. This event is being reported as a voluntary LER to notify the NRC of the event.

DESCRIPTION

On September 20, 1989, with the plant in cold shutdown, engineers discovered that the #13 and #14 Emergency Service Water (BI) (ESW) pumps (P) auto start only when essential busses are powered from the emergency diesel generator and not when powered from 1AR, an emergency offsite power source. Operation of the ESW pumps is required in both cases since the normal service water pumps would be load shed. The ESW pumps serve the Control Room Ventilation and Emergency Filter Train system (VI) (CRV-EFT), the Residual Heat Removal (BO) (RHR) and Core Spray (BG) (CS) pump motor coolers, and the High Pressure Coolant Injection (BJ) (HPCI) room and RHR and CS pump room coolers. The ESW pumps were installed in 1983 as part of a modification to upgrade the control room habitability system.

Both #13 and #14 ESW pumps were operable at the time of the event.

CAUSE

Failure to realize that the #13 and #14 ESW pumps needed to auto start upon power transfer to 1AR resulted in this design error. The error was cognitive. There were no unusual characteristics of the work location that directly contributed to the error.

ANALYSIS

If an ECCS initiation would have occurred with a transfer of power to 1AR, power would have been lost to the Service Water pumps. Without an initiation signal to the ESW pumps on transfer to 1AR, no cooling would have been supplied to the RHR and Core Spray Pump Motor coolers, RHR and HPCI room coolers, or Control Room Coolers. This condition would annunciate an alarm in the control room, notifying operators that a low Service Water header pressure situation was occurring. Alarm response procedures instruct the operators to start or verify the pumps are started. Backup indication of this condition is provided by alarms which annunciate when the HPCI or the RHR room temperature reaches 130°F. Based on a test of room heat up rates, the operators would have at least 2 hours to respond before upper temperature limits for the RHR or Core Spray rooms and motors would occur. Additionally, the temperature in the Control Room would increase due to loss of cooling to chiller condensers resulting in the control room operators starting the #13 or #14 ESW pump. The

ESW pumps can be started with handswitch controls located in the control room.

The operability of affected equipment was, therefore, assured because 1) adequate time was available for operator response; 2) the condition is annunciated and alarm response procedures specify the appropriate operator corrective actions; and 3) the necessary actions can be carried out from the control room. This logic error existed since pump installation in 1983.

This is being reported as a voluntary LER to notify the NRC of the event.

CORRECTIVE ACTION

The control logic was changed so that the #13 and #14 ESW pumps automatically start on transfer to 1AR transformer. This modification was completed prior to startup after the 1989 refueling outage.

A review of 1AR loads will be completed prior to start-up to assure all emergency loads required to be powered by 1AR have appropriate auto initiation features in their control logic.

ADDITIONAL INFORMATION

Failed Component Identification

None

Previous Similar Events

None