Northern States Power Company

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

August 30, 1993

Report Required by
10 CFR Part 50, Section 50.73

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

MONTICELLO NUCLEAR GENERATING PLANT
Docket No. 50-263 License No. DPR-22

Reactor Protection System Actuation From Low
Reactor Level Caused by Main Condensate Pump Trip

The Licensee Event Report for this occurrence is attached. This report contains the following new NRC commitments.

1. The No. 11 Condensate Pump motor will be inspected for any internal degradation during the 1994 refueling outage.

2. Preventive maintenance will be performed on the No. 11 Condensate Pump breaker during the 1994 refueling outage.

Please contact Marv Engen, Sr Licensing Engineer, at (612) 295-1291 if you require further information.

Roger O. Anderson

Roger O Anderson
Director
Licensing and Management Issues

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

Attachment

IE22

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NRC FORM 366 (5-92) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 5/31/95

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
MONTICELLO NUCLEAR GENERATING PLANT	05000-263	1 OF 4

TITLE (4) Reactor Protection System Actuation From Low Reactor Level Caused by Main Condensate Pump Trip

EVENT DATE (5)			LER NUMBER (6)			REPORT NUMBER (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
										05000
07	31	93	93	-- 008 --	00	08	30	93	FACILITY NAME	DOCKET NUMBER 05000

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)			
POWER LEVEL (10)	100	20.402(b)	20.405(c)	XXX 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
		20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	(Specify in Abstract below and in Text, NRC Form 366A)
		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 (Include Area Code)
Steve Engelke, Superintendent, Elec & Inst Systems Eng	(612) 295-1329

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
X	SD	50	G080	Yes						

SUPPLEMENTAL REPORT EXPECTED (14)			EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	X	NO				

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

During normal full power operation a Reactor Protection System trip from low reactor water level occurred. The Standby Gas Treatment System and several containment isolation groups were also initiated on low reactor level. Normal post trip procedures were followed to restore stable conditions. One condensate and one feedwater pump remained in operation during the event. Level remained well above the ECCS initiation setpoint. There were no failures or other complications. The immediate cause was a reduction in reactor feedwater flow due to a ground fault relay trip of a main condensate pump. The cause of the ground fault relay trip has not been determined. Extensive investigation and testing was conducted. No abnormal conditions were found. A motor inspection and breaker maintenance are scheduled for the next refueling outage.

REQUIRED NUMBER OF DIGITS/CHARACTERS
FOR EACH BLOCK

BLOCK NUMBER	NUMBER OF DIGITS/CHARACTERS	TITLE
1	UP TO 46	FACILITY NAME
2	8 TOTAL 3 IN ADDITION TO 05000	DOCKET NUMBER
3	VARIES	PAGE NUMBER
4	UP TO 76	TITLE
5	6 TOTAL 2 PER BLOCK	EVENT DATE
6	7 TOTAL 2 FOR YEAR 3 FOR SEQUENTIAL NUMBER 2 FOR REVISION NUMBER	LER NUMBER
7	6 TOTAL 2 PER BLOCK	REPORT DATE
8	UP TO 18 -- FACILITY NAME 8 TOTAL -- DOCKET NUMBER 3 IN ADDITION TO 05000	OTHER FACILITIES INVOLVED
9	1	OPERATING MODE
10	3	POWER LEVEL
11	1 CHECK BOX THAT APPLIES	REQUIREMENTS OF 10 CFR
12	UP TO 50 FOR NAME 14 FOR TELEPHONE	LICENSEE CONTACT
13	CAUSE VARIES 2 FOR SYSTEM 4 FOR COMPONENT 4 FOR MANUFACTURER NPRDS VARIES	EACH COMPONENT FAILURE
14	1 CHECK BOX THAT APPLIES	SUPPLEMENTAL REPORT EXPECTED
15	6 TOTAL 2 PER BLOCK	EXPECTED SUBMISSION DATE

Description

On July 31, 1993, at 0234 hours, with the plant at 100% thermal power, the Reactor Protection System (EIIS System: JC) tripped from reactor low water level. The low water level also initiated the Standby Gas Treatment System (EIIS System: BH), Secondary Containment (EIIS System: NG), Reactor Water Cleanup (EIIS System: CE)(Group 3) and Primary Containment (Group 2) isolations.

The event began when a ground fault relay tripped (EIIS Component: 50) the No. 11 Condensate (EIIS System: SD) pump. This subsequently resulted in a low suction pressure trip of No. 11 Reactor Feedwater (EIIS System: SJ) pump. In response to the condensate pump trip, the control room operator initiated a reduction of reactor recirculation flow to reduce reactor power and thereby reduce feedwater requirements to within the capability of the remaining pumps. However, the feedwater pump tripped and reactor level reached the scram setpoint before a sufficient reduction was achieved. The operating crew performed normal post scram and isolation follow-up procedures to place the plant in a stable condition and restore isolated systems.

The event is reportable per 10CFR50.73 as an unplanned automatic actuation of Engineered Safety Features.

Cause

The cause of the condensate pump ground fault trip is unknown. The breaker was inspected, the pump motor and leads were meggered, resistance of each phase was measured, the ground fault current transformer was inspected and tests were conducted to verify proper operation. The ground fault relay was tested for setpoint and sensitivity to mechanical shock. An induction motor rotor c. dition test was conducted. A sample of the motor oil was analyzed. 4KV bus ltages prior to and during the event, as recorded by the plant computer, were evaluated. Cable terminations and connections were inspected. Everything indicated that the pump, motor and associated electrical equipment were operating properly. Subsequent operation of the pump appears normal.

There was one person near the back side of the breaker at the time of the trip. A review of the movements of this individual indicated that the breaker cabinet containing the ground fault relay was not bumped.

Analysis

This event represents an unnecessary challenge to the reactor protection and isolation systems and an unnecessary plant transient. It occurred at full rated power which is the most severe condition for a loss of feedwater. However, all systems responded as designed and all parameters remained within analyzed values. The No. 12 Condensate and No. 12 Feedwater pumps remained in service during the event. Reactor level remained well above the ECCS initiation level. Therefore, there were no consequences directly affecting public health and safety.

Corrective Actions

The following activities were performed to determine immediate corrective actions. However, no abnormal conditions were found.

1. Megger of the motor and leads from the breaker cubicle.

2. Resistance checks of each phase of the motor from the breaker cubicle.

3. Breaker tests including megger, contact resistance, and close/trip operation.

4. Set point verification of the ground fault relay.

5. Visual inspection of the ground fault current transformer, breaker terminations, and current transformer cabling at the breaker cubicle.

6. Current transformer test with data compared to previous data.

7. An induction motor rotor condition test.

8. Motor oil sample analysis.

9. Evaluation of 4KV bus voltage levels prior to and during the event, as recorded by the plant computer.

10. Inspection of cable connection condition at the termination box.

11. With the ground fault relay isolated, it was jarred to determine sensitivity to mechanical shock.

12. The individual near the breaker when it tripped was interviewed.

13. Vibration testing and thermographic inspection of the motor and breaker cubicle after restarting the motor.

The following actions are scheduled for completion during the 1994 refueling outage:

1. The motor will be inspected for any internal degradation.

2. Preventive maintenance will be performed on the breaker

Additional Information

Failed Component Identification:

Ground Fault Rely
Manufacturer: General Electric
Model: 12PJC11AV1A

Previous Simulator Events:

The previous event, Licensee Event 87-009, Scram Following Closure of 4KV Breaker Door, involved a trip of the condensate pump breaker. However, unlike the recent event, that event was caused by a forceful closure of the breaker door which initiated the condensate pump trip relays.