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DUKE POWER

DATE: January 15, 1996

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Subject: McGuire Nuclear Station Unit 2
Docket No. 50-370

Licensee Event Report 370/95-04, Revision 0
Problem Investigation Process No.: 0-M95-2196

Gentlemen:

Pursuant to 10 CFR 50.73 Sections (a) (1) and (d), attached is Licensee Event Report 370/95-04, Revision 0, concerning a manually initiated actuation of the Motor Driven Auxiliary Feedwater Pumps on McGuire Unit 2. This report is being submitted in accordance with 10 CFR 50.73 (a) (2) (iv). This event is considered to be of no significance with respect to the health and safety of the public.

Very truly yours,

T.C. McMeekin

RJD/bcb

Attachment

cc: Mr. S.D. Ebneter
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U.S. Nuclear Regulatory Commission
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Mr. Victor Nerses
U.S. Nuclear Regulatory Commission
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NRC FORM 366 U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMD 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)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
McGuire Nuclear Station	05000 370	1 OF 5

TITLE (4)
Manually Initiated Actuation Of Both Unit 2 Motor Driven Auxiliary Feedwater Pumps Due To Loss of Auxiliary Steam Supply To The Main Feedwater Pump Turbine

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 NAME	DOCKET NUMBER(S)
										05000
12	16	95	95	- 04	- 0	01	15	96	N/A	05000

OPERATING MODE (9)	3	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR (Check one or more of the following) (11)					
POWER LEVEL (10)	0	20.402(b)	20.405(c)	X	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)	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	
J. W. Pitesa, Safety Review Manager	(704)	875-4788

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)	X NO				

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

Unit Status: Unit 2 - Mode 3 (Hot Standby) at 0 percent power.

Event Description: On December 16, 1995, at approximately 0430, Operations (OPS) personnel had just taken Unit 2 off line to repair Reactor Vessel Head Vent Valves. Unit 1 was off line for refueling. This put both Units in an alignment requiring the Auxiliary Electric Boilers to provide steam to necessary components. OPS personnel were proceeding to break vacuum on Unit 1. During performance of the associated procedure, a valve was closed which isolated steam flow from the Auxiliary Electric Boilers to Unit 2. Loss of steam flow caused the Main Feedwater (CF) Pump to gradually back out of the header and in turn caused a reduction of feedwater flow to all four Unit 2 Steam Generators(SGs). In initial response, OPS personnel manually started both Unit 2 Motor Driven Auxiliary Feedwater (MDCA) Pumps to recover SG levels. The improper alignment was discovered very quickly, and the valve was reopened. With supply steam being restored, the CF Pump came back to speed, and again was able to supply adequate feedwater flow to the SGs. The MDCA Pumps were then secured.

Event Cause: This event was caused by a deficiency with procedure OP/1/A/6100/SD-18, Breaking Vacuum. This deficiency was caused by a previously unrecognized interaction of systems and components for this particular alignment.

Corrective Action: Appropriate changes will be made to the affected procedures.

EVALUATION:

Description of Event

On December 16, 1995, at approximately 0430, Unit 2 was in Mode 3 (Hot Standby) at 0 percent power. The Unit had been taken offline to enable repair of a leak which had developed on the Reactor [EIIS:RCT] Vessel Head Vent Valves [EIIS:VTV]. Unit 1 had been taken off line on December 14, 1995, for the Unit 1 EOC10 Refueling Outage and was in Mode 5 (Cold Shutdown).

- Both Units were in an alignment requiring the Auxiliary Electric Boilers [EIIS:BLR] to provide the steam supply to necessary components.

- A leak had developed on the "A" Auxiliary Electric Boiler which would require it to be shut down to repair. To facilitate this shut down, OPS personnel were in the process of reducing steam loads so that the "B" Boiler could handle the entire steam demand.

Part of the process for reducing steam loads was to expedite breaking vacuum on Unit 1 using procedure OP/1/A/6100/SD-18, Breaking Vacuum.

- A step in the procedure stated to close valve [EIIS:V] 1AS-0074, Units 1 and 2 Auxiliary Steam [EIIS:SA] (AS) Header Isolation.

When the valve was closed, steam flow from the Auxiliary Electric Boilers was isolated to Unit 2 causing the Main Feedwater [EIIS:SJ] (CF) Pump [EIIS:P] in use to gradually back out of the header. This in turn caused a reduction of CF flow to all four Unit 2 Steam Generators [EIIS:SG] (SGs).

- At that time the Control Room received annunciator alarms for flow deviation on all four Unit 2 SGs.

- In initial response, the Unit 2 Reactor Operator At The Controls (ROATC) manually started both Unit 2 Motor [EIIS:MO] Driven Auxiliary Feedwater [EIIS:BA] (MDCA) Pumps to recover SG levels. This action was prompt and conservative in nature for the situation at that time to ensure adequate feedwater flow was maintained to the SGs.

The error in closing valve 1AS-0074 with the Units in this particular configuration was discovered very quickly, and it was reopened within a few minutes.

- With AS flow being restored, the CF Pump came back to speed, and again was able to supply adequate CF flow to the SGs.

- With CF flow being restored from the CF Pump, the MDCA Pumps were then secured.

The required four hour notification to the NRC was made per procedure RP/0/A/5700/10, NRC Immediate Notification Requirements.

Conclusion

This event did not result in any uncontrolled releases of radioactive material, personnel injuries, or radiation overexposures. The event is not Nuclear Plant Reliability Data System (NPRDS) reportable.

- The primary cause of this event was a deficiency with procedure OP/1/A/6100/SD-18, Breaking Vacuum. The deficiency was caused by a previously unrecognized interaction of systems and components for this particular plant configuration.

The plant configuration for which closing valve 1AS-0074 created this problem is very specific and was as follows:

- Both units were incapable of supplying AS flow.

- Unit 2 was receiving AS flow from the Auxiliary Electric Boilers.

- Unit 2B CF pump was on line and supplying CF flow to the SGs.

OPS personnel who were involved in the development of the procedure step in question did not consider the particular plant configuration as described. Subsequent reviews of the procedure also failed to consider the possibility of such a plant configuration.

- This caused the OPS Control Room personnel involved at the time of the event to direct the closure of valve 1AS-0074, which was in error for the particular plant configuration at that time.

Since the time that this particular procedure was developed, a more thorough verification and validation process has been put in place by OPS personnel who are involved with the development of procedures. Implementation of this process should aid in the prevention of similar deficiencies in the future.

A review of the Operating Experience Program (OEP) and Problem Investigation Process (PIP) data bases for the past 24 months revealed no similar reportable events associated with a manual Engineered Safety Features Actuation as a result of a deficiency with a procedure. This event is not considered to be recurring.

CORRECTIVE ACTION:

Immediate:

1. OPS personnel started both Unit 2 MDCA Pumps.

2. OPS personnel reopened Valve 1AS-0074.

Subsequent:

1. OPS personnel shut down both Unit 2 MDCA pumps.

Planned:

1. OPS personnel will make appropriate changes to procedures OP/1/A/6100/SD-18, Breaking Vacuum, OP/0/B/6250/07A, Auxiliary Steam System Alignment, and OP/2/A/6100/02, Controlling Procedure For Unit Shutdown.

SAFETY ANALYSIS:

Based on this analysis, this event is not considered to be significant. At no time were the health and safety of the public or plant personnel affected as a result of this event.

- The Unit 2 ROATC started both Unit 2 MDCA pumps in response to decreasing SG levels. This action was prompt, conservative in nature, and in accordance with Station Procedures for the situation at that time.

- Normally, during Mode 3 operations, SG Narrow Range Levels are maintained at 38 percent. During this event SG levels decreased to a

low point of approximately 31.5 percent Narrow Range. Automatic actuation of the CA pumps would not have occurred until SG Narrow Range Levels had decreased to 12 percent.

- The MDCA pumps were used for injection to the SGs for a very short duration (approximately 10 minutes).

- After valve 1AS-0074 was reopened, AS flow was reestablished to the CF Pump and CF flow to the SGs was recovered quickly. The MDCA pumps were then secured.

- The MDCA pumps responded as designed and injection flow rates were within expected values at all times during this event.