

## LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) McGuire Nuclear Station - Unit 2										DOCKET NUMBER (2) 0 5 0 0 0 3 7 0										PAGE (3) 1 OF 0 3	
TITLE (4) Unplanned ESF Actuation Resulting in Feedwater Isolation																					
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 7	1 2	8 5	8 5	0 2 0	0 0 0	0 8	1 2	8 5							0 5 0 0 0						
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 0 0		20.402(b)				20.406(c)				<input checked="" type="checkbox"/> 50.73(a)(2)(iv)				73.71(b)							
		20.406(a)(1)(i)				50.38(c)(1)				50.73(a)(2)(v)				73.71(c)							
		20.406(a)(1)(ii)				50.38(c)(2)				50.73(a)(2)(vii)				OTHER (Specify in Abstract below and in Text, NRC Form 366A)							
		20.406(a)(1)(iii)				50.73(a)(2)(i)				50.73(a)(2)(viii)(A)											
		20.406(a)(1)(iv)				50.73(a)(2)(ii)				50.73(a)(2)(viii)(B)											
		20.406(a)(1)(v)				50.73(a)(2)(iii)				50.73(a)(2)(ix)											
LICENSEE CONTACT FOR THIS LER (12)																					
NAME Jerry Day - Licensing										TELEPHONE NUMBER AREA CODE 7 0 4 3 7 3 1 - 7 0 3 3											
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)										EXPECTED SUBMISSION DATE (15)				MONTH		DAY		YEAR			
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)										<input checked="" type="checkbox"/> NO											
ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)																					
<p>On July 12, 1985, two engineered safeguard feature (ESF) main feedwater isolation signals were generated. Unit 2 was already shutdown so plant operation was not affected. Plant equipment responded correctly to the signals.</p> <p>The first ESF signal occurred when a reactor trip breaker was opened without blocking the main feedwater isolation signal. The second ESF signal occurred when a reactor trip breaker tripped open during testing of the solid state protection system.</p> <p>The unit was in Mode 3 (Hot Standby) at the time of the events.</p> <p>The first actuation is attributed to personnel error because a feedwater isolation reset button was not depressed when a reactor trip breaker was opened. The second actuation is attributed to procedural deficiency because adequate test prerequisites were not in place to prevent the ESF actuation.</p> <p>Appropriate procedures will be enhanced to minimize the chance of an inadvertent ESF actuation.</p>																					
8508200188 850812 PDR ADDOCK 05000370 S PDR																					

JE22  
11

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/85

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
McGuire Nuclear Station - Unit 2	0 5 0 0 0 3 7 0	8 5	— 0 2 0	— 0 0	0 2	OF	0 3

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

On July 12, 1985, two engineered safeguard feature (ESF) main feedwater isolation signals were generated. Unit 2 was in Mode 3 (Hot Standby) so plant operation was not affected.

The first ESF signal occurred when a reactor trip breaker was opened without blocking the main feedwater isolation signal. The second ESF signal occurred when a reactor trip breaker tripped open during testing of the solid state protection system.

The first actuation is attributed to personnel error because a feedwater isolation reset button was not depressed when a reactor trip breaker was opened. It is standard operating practice to hold in the reset button when opening a reactor trip breaker, if a main feedwater isolation is not desired. The second actuation is attributed to a procedural deficiency because adequate test prerequisites were not in place to prevent the ESF actuation.

The manual reactor trip test verifies that the reactor trip breakers open when a manual trip is initiated from the control room. Train "B" portion of this test had been completed and the train "A" portion was in progress. The 2A reactor trip test had been initiated and the reactor trip breakers RTA and BYB opened in accordance with procedure. A step in the procedure states "Close reactor trip breaker 52/RTA (2A Reactor Trip Breaker) from the control room if desired". It was decided that reactor trip breaker RTA should be left open and that breaker RTB should also be left open in preparation for maintenance. A step of the B train portion of this test allowed leaving RTB open, but the step had already been completed to close RTB. Nuclear Control Operator (NCO) "A" was instructed by his supervisor that he could open RTB. NCO "A" opened RTB without pushing the feedwater isolation reset button, initiating a train "B" main feedwater isolation signal.

The opening of RTB was completed outside of the test procedure. The test procedure specifies to hold the feedwater isolation reset buttons when tripping the reactor trip breakers to prevent feedwater isolation on manual reactor trip. Since the opening of RTB was completed outside of the test procedure, this was not done.

The operating procedure for rod control during reactor shutdown has the following note prior to the step to trip open the reactor trip breaker:

"If desired, depress and hold both 'Feedwater Isol Reset Train 2A' and 'Feedwater Isol Reset Train 2B' Pushbuttons while the Reactor Trip Breakers are being opened to prevent Feedwater Isolation."

This procedure is used to shutdown the reactor. Since the reactor had already been tripped, this procedure did not apply to breaker manipulations being made.

A procedure was not violated. However, supervisory personnel state that it is standard operating practice to hold the feedwater isolation reset buttons when tripping open a reactor trip breaker, if a feedwater isolation signal is not desired.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/85

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
McGuire Nuclear Station - Unit 2	05000370	85	020	00	03	OF	03

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

A train "A" feedwater isolation signal was generated when reactor trip bypass breaker BYA was closed and then reopened automatically. Reactor trip bypass breaker BYA was closed locally (at the breaker) in accordance with the test procedure "Solid State Protection System (SSPS) Train A Periodic Test Above NC System Pressure of 1955". The breaker immediately reopened automatically, satisfying the logic required to generate a feedwater isolation signal.

The reason breaker BYA would not remain closed was that the reactor trip manual switches in the control room had been placed in the trip position earlier in the day. The control room trip switches are three position spring return to center switches. One contact on the switch remains open after the switch is placed in the "Trip" position and returns to center. This open contact prevented BYA from remaining closed. When the switch returns to center after being placed in the "Close" position, this contact remains closed.

Reactor trip breaker RTA was racked into the connect position, but was not closed. The prerequisites for this test did not require RTA to be closed. Had RTA been closed, a feedwater isolation signal would not have been generated. A step of the SSPS test procedure should have verified that RTA was closed before BYA was closed. This step states: "Verify that RT52B and RT33B contacts are open by measuring for 0 VDC between terminal 5-4 (+) and station GND bus (in back of reactor trip breaker "RTA" cabinet)." Breaker RTA would have had to be closed for contacts RT52B and RT33B to be open. This step is written to measure voltage at the wrong location to verify these contacts are open.

CORRECTIVE ACTIONS:

Immediate: The main feedwater isolation signals were reset and valve alignments were returned to normal.

Subsequent: None

- Planned:
1. The procedure "Solid State Protection System (SSPS) Train A Periodic Test Above NC System Pressure of 1955" will include adequate prerequisites to prevent an inadvertent ESF actuation. Other SSPS LAE procedures will be reviewed and revised as needed to minimize the chance of generating an inadvertent ESF Actuation.
  2. This incident will be reviewed with shift personnel to discuss the standard operating practice when opening the reactor trip breakers.

SAFETY ANALYSIS: Unit 2 was shutdown at the time of the event. The plant responded correctly to the main feedwater isolation signals. The safety and health of the public were not affected.

DUKE POWER COMPANY

P.O. BOX 33189  
CHARLOTTE, N.C. 28242

HAL B. TUCKER  
VICE PRESIDENT  
NUCLEAR PRODUCTION

TELEPHONE  
(704) 373-4531

August 12, 1985

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

Subject: McGuire Nuclear Station, Unit 2  
Docket No. 50-370  
LER 370/85-20

Gentlemen:

Pursuant to 10 CFR 50.73 Sections (a)(1) and (d), attached is Licensee Event Report 370/85-20 concerning two unplanned Engineered Safety Features actuations. This event was considered to be of no significance with respect to the health and safety of the public.

Very truly yours,

*H. B. Tucker*  
Hal B. Tucker

JBD/hrp

Attachment

cc: Dr. J. Nelson Grace, Regional Administrator  
U. S. Nuclear Regulatory Commission  
Region II  
101 Marietta Street, NW, Suite 2900  
Atlanta, Georgia 30323

American Nuclear Insurers  
c/o Cottie Sherman, ANI Library  
The Exchange, Suite 245  
270 Farmington Avenue  
Farmington, CT 06032

INPO Records Center  
Suite 1500  
1100 Circle 75 Parkway  
Atlanta, Georgia 30339

M&M Nuclear Consultants  
1221 Avenue of the Americas  
New York, New York 10020

Mr. W. T. Orders  
NRC Resident Inspector  
McGuire Nuclear Station

IE22  
11