

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) McGuire Nuclear Station - Unit 1										DOCKET NUMBER (2) 0 5 0 0 0 3 6 9 1 OF 0 4				PAGE (3) 1 OF 0 4		
TITLE (4) Received Train B Safety Injection Signal While in Mode 5																
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	8	1	8	8	6	0	1	4					0 5 0 0 0			
0	8	1	8	8	6	0	1	4					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)														
5		20.402(b)				20.405(c)				50.73(a)(2)(iv)				73.71(b)		
POWER LEVEL (10)		0 0 0				50.36(c)(1)				50.73(a)(2)(v)				73.71(c)		
		20.405(a)(1)(i)				50.36(c)(2)				50.73(a)(2)(vii)				OTHER (Specify in Abstract below and in Text, NRC Form 366A)		
		20.405(a)(1)(ii)				50.73(a)(2)(i)				50.73(a)(2)(viii)(A)						
		20.405(a)(1)(iii)				50.73(a)(2)(ii)				50.73(a)(2)(viii)(u)						
		20.405(a)(1)(iv)				50.73(a)(2)(iii)				50.73(a)(2)(ix)						
		20.405(a)(1)(v)														
LICENSEE CONTACT FOR THIS LER (12)																
NAME J.B. Day, Licensing										TELEPHONE NUMBER						
										AREA CODE 7 0 4 3 7 3 - 7 0 3 3						
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDs		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDs						
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)

On August 18, 1986, at 1115, an ESF Train B Safety Injection signal was actuated from a Pressurizer Safety Injection Low Pressurizer Pressure signal. This signal was generated due to a defective procedure not requiring the blocking of the correct train pressurizer low pressure signal. Operators implemented the procedure "Emergency Core Cooling System (ECCS) Actuation During Plant Shutdown" and secured from the safety injection. The incident occurred during testing of Reactor Trip Breakers RTB and BYA.

Unit 1 was in Mode 5, Cold Shutdown, at the time of this incident.

This incident is attributed to a Defective Procedure. The procedure, Response Time Testing of Reactor Trip Breakers RTB and/or BYA incorrectly directed personnel to depress the Pressurizer Safety Injection Train A Block pushbutton instead of the Train B pushbutton. Contributing is a personnel error, because an operator failed to correctly verify the state of control room status light "PZR Lo-Press S/I Train B Blocked".

The procedure has been changed. Equipment that was not tagged out started as designed, however due to safety injection and chemical and volume control system train B pumps being tagged out, no water was injected into the reactor coolant system. The signal was reset and secured.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104
EXPIRES 8/31/85

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McGuire Nuclear Station - Unit 1	0 5 0 0 0 3 6 9	8 6	— 0 1 4	— 0 0 0	2	OF	0 4

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

On August 18, 1986, at 1115, an ESF [EIIS:JE] Train B Safety Injection [BQ] signal was actuated from a Pressurizer Safety Injection Low Pressurizer Pressure signal. This signal was generated due to a defective procedure not requiring the blocking of the correct train pressurizer low pressure signal. Operators implemented the procedure "Emergency Core Cooling System (ECCS) Actuation During Plant Shutdown" and secured from the safety injection. The incident occurred during testing of Reactor Trip Breakers RTB and BYA.

Unit 1 was in Mode 5, Cold Shutdown, at the time of this incident.

This incident is attributed to a Defective Procedure. The procedure, Response Time Testing of Reactor Trip Breakers RTB and/or BYA incorrectly directed personnel to depress the Pressurizer Safety Injection Train A Block pushbutton instead of the Train B pushbutton. Contributing is a personnel error, because an operator failed to correctly verify the state of control room status light "PZR Lo-Press S/I Train B Blocked". Also contributing is a management deficiency, because some personnel did not receive training involving double signoffs between two groups.

BACKGROUND

The reactor trip switchgear consists of two Reactor Trip Breakers, RTA and RTB, and two bypass breakers, BYA and BYB. The reactor trip breakers are connected in series with both motor-generator (MG) sets so that opening either breaker interrupts power to all control rod drive [AA] mechanisms, permitting the rods to free fall into the core. The reactor trip breakers are actuated by two separate logic matrices of the solid State Protection System (SSPS), with train A controlling breaker RTA and Train B controlling breaker RTB. The bypass breakers are used during testing of the reactor trip breakers.

DESCRIPTION OF EVENTS:

On August 18, 1986, personnel began performing "Response Time Testing of Reactor Trip Breakers RTB and/or BYA". While performing the test, operators personnel depressed the Pressurizer Safety Injection Train A Block pushbutton according to procedure. The procedure step, which required the Train A Pressurizer Safety Injection Block pushbutton to be depressed, was incorrect in that the step should have said to block Train B signal. This procedure step required the verification of the Train B blocked status light being lit. This resulted in a personnel error when an operator verified the wrong train status light. Also, this step required a sign off by Operations and IAE personnel to verify the actions taken in the step. However, IAE personnel involved had not received training pertaining to steps which require signoffs by two groups. Due to the procedural error, the Pressurizer Safety Injection Train B signal was not blocked from the Solid State Protection System (SSPS).

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

At 1115, the Train B "SSPS Input Error Inhibit" switch was rotated to the normal position according to procedure. Due to the train B Pressurizer Safety Injection Signal not being blocked, (Train A was incorrectly blocked), a Low Pressurizer Pressure Safety Injection/Reactor Trip signal was received. Diesel Generator [EK] 1B, Residual Heat Removal [BP] Pump 1B, Component Cooling [CC] pumps 1B1 and 1B2, and Nuclear Service Water [BI] pump 1B automatically started in response to the safety injection signal. The procedure "ECCS Actuation During Plant Shutdown" was immediately implemented. No water was injected into reactor vessel due to Safety Injection [BQ] (NI) and Chemical and Volume Control [CB] (NV) Train B pumps being tagged out. Safety Injection train B was reset and secured. Response testing of Reactor Trip Breakers RTB and BYA was then completed.

CONCLUSION

This incident has been attributed to a Defective Procedure, due to the procedure directing operators to depress the wrong train pushbutton of the Pressurizer Safety Injection Block.

Also, a personnel error is a contributing cause to this incident due to the Operator and IAE personnel failing to verify the correct state of status light "Pressurizer Low Pressure Safety Injection Train B Blocked". However, a Contributing Management Deficiency, has also been assigned because IAE personnel did not receive training involving double sign-offs between two groups.

Underlying causes may have contributed to the personnel error. There were a lot of activities in the control room area which required the attention of the Operator. Personnel were working on containment isolation valve stroke timing and penetration testing. The blackout load sequencer was being tested. Personnel were working on the Reactor Protection System Channel I (Train A functional) and the SSPS.

A review of past incidents indicates there have been previous incidents similar to this one (see LERs 370/86-09 and 369/81-78). The previous incidents involve an ESF actuation due to defective procedures. This incident is considered recurring.

CORRECTIVE ACTIONS:

Immediate: The procedure "ECCS Actuation During Plant Shutdown" was implemented. .

Subsequent: 1) The Safety Injection Train B signal was reset.
2) A procedure change was implemented to correct the defective step in "Response Time Testing of Reactor Trip Breakers RTB and/or BYA".

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

- Planned:
- 1) Personnel will evaluate the need of incorporating independent verification on procedure steps requiring signoffs between two groups and/or provide additional training to clarify the responsibility of each person involved in double signoffs between two groups.
 - 2) This incident will be covered with all control room personnel to reiterate the independent verification process with two group signoffs and the need to carefully think through and evaluate each step in procedures involving Operations and other groups.

SAFETY ANALYSIS

The Safety Injection Signal initiated correctly when the SSPS Input Error Inhibit Train B switch was moved to the normal position while the Pressurizer Safety injection Train B signal was not blocked.

Unit 1 was in Mode 5 at the time of the incident, with ND Pump 1A running as required by Technical Specification (T.S.) 3.4.1.4.2 for NC System Cooling. Vent valves on the Resistance Temperature Device (RTD) manifolds were used as a vent path to containment building atmosphere to prevent overpressurizing the half filled NC system piping. When the SSPS was energized without the pressurizer low pressure Train B signal blocked, the safety injection signal was actuated and ND pump Train B started to fill the NC system piping. Operations personnel immediately implemented the procedure "ECCS Actuation During Plant Shutdown" (AP/1/A/5500/35). This prevented overfilling the NC system and spraying overflow through the vent valves of the RTD manifold.

Had the incident occurred at 100% power, the NC system pressure would be above 1845 psi and would have prevented the safety injection signal from originating from low pressurizer pressure. This incident is bounded by the accident analysis in chapter 15 of the Final Safety Analysis Report (FSAR).

At all times, adequate heat removal capability was available by use of ND pumps 1A and 1B.

The health and safety of the public were not affected by this incident.

DUKE POWER COMPANY

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September 17, 1986

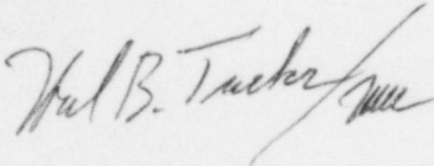
Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: McGuire Nuclear Station, Unit 1
Docket Nos. 50-369
369/86-14

Gentlemen:

Pursuant to 10CFR50.73, attached is Licensee Event Report 369/86-14 concerning Unit 1 Receiving a Train B Safety Injection Signal While in Cold Shutdown. This event was considered to be of no significance with respect to the health and safety of the public.

Very truly yours,



Hal B. Tucker

JBD/93/jgm

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