



Tennessee Valley Authority, Post Office Box 2000, Spring City, Tennessee 37381

December 20, 2017

10 CFR 50.73

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Watts Bar Nuclear Plant, Units 1 and 2
Facility Operating License Nos. NPF-90 and NPF-96
NRC Docket Nos. 50-390 and 50-391

Subject: **Licensee Event Report 390/2017-014-00, Main Control Room Boundary
Door Left Open Leading to a Loss of Safety Function**

This submittal provides Licensee Event Report (LER) 390/2017-014-00. This LER provides details concerning an incident where the main control room boundary door was left open and unattended for several minutes. This condition is being reported as a loss of safety function in accordance with 10 CFR 50.73(a)(2)(v)(D).

There are no regulatory commitments contained in this letter. Please direct any questions concerning this matter to Kim Hulvey, WBN Licensing Manager, at (423) 365-7720.

Respectfully,

A handwritten signature in black ink, appearing to read "Paul Simmons", with a long horizontal line extending to the right.

Paul Simmons
Site Vice President
Watts Bar Nuclear Plant

Enclosure
cc: See Page 2

U.S. Nuclear Regulatory Commission
Page 2
December 20, 2017

cc (Enclosure):

NRC Regional Administrator - Region II
NRC Senior Resident Inspector - Watts Bar Nuclear Plant



LICENSEE EVENT REPORT (LER)

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Information Services Branch (T-2 F43), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. FACILITY NAME

Watts Bar Nuclear Plant, Unit 1

2. DOCKET NUMBER

05000390

3. PAGE

1 OF 5

4. TITLE

Main Control Room Boundary Door Left Open Leading to a Loss of Safety Function

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED			
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER		
10	30	2017	2017	- 014	- 00	12	20	2017	Watts Bar Nuclear Plant, Unit 2	05000391		
									FACILITY NAME	DOCKET NUMBER		
9. OPERATING MODE			11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)									
1			<input type="checkbox"/> 20.2201(b)			<input type="checkbox"/> 20.2203(a)(3)(i)			<input type="checkbox"/> 50.73(a)(2)(ii)(A)		<input type="checkbox"/> 50.73(a)(2)(viii)(A)	
			<input type="checkbox"/> 20.2201(d)			<input type="checkbox"/> 20.2203(a)(3)(ii)			<input type="checkbox"/> 50.73(a)(2)(ii)(B)		<input type="checkbox"/> 50.73(a)(2)(viii)(B)	
			<input type="checkbox"/> 20.2203(a)(1)			<input type="checkbox"/> 20.2203(a)(4)			<input type="checkbox"/> 50.73(a)(2)(iii)		<input type="checkbox"/> 50.73(a)(2)(ix)(A)	
			<input type="checkbox"/> 20.2203(a)(2)(i)			<input type="checkbox"/> 50.36(c)(1)(i)(A)			<input type="checkbox"/> 50.73(a)(2)(iv)(A)		<input type="checkbox"/> 50.73(a)(2)(x)	
10. POWER LEVEL			<input type="checkbox"/> 20.2203(a)(2)(ii)			<input type="checkbox"/> 50.36(c)(1)(ii)(A)			<input type="checkbox"/> 50.73(a)(2)(v)(A)		<input type="checkbox"/> 73.71(a)(4)	
			<input type="checkbox"/> 20.2203(a)(2)(iii)			<input type="checkbox"/> 50.36(c)(2)			<input type="checkbox"/> 50.73(a)(2)(v)(B)		<input type="checkbox"/> 73.71(a)(5)	
			<input type="checkbox"/> 20.2203(a)(2)(iv)			<input type="checkbox"/> 50.46(a)(3)(ii)			<input type="checkbox"/> 50.73(a)(2)(v)(C)		<input type="checkbox"/> 73.77(a)(1)	
			<input type="checkbox"/> 20.2203(a)(2)(v)			<input type="checkbox"/> 50.73(a)(2)(i)(A)			<input checked="" type="checkbox"/> 50.73(a)(2)(v)(D)		<input type="checkbox"/> 73.77(a)(2)(i)	
			<input type="checkbox"/> 20.2203(a)(2)(vi)			<input type="checkbox"/> 50.73(a)(2)(i)(B)			<input type="checkbox"/> 50.73(a)(2)(vii)		<input type="checkbox"/> 73.77(a)(2)(ii)	
						<input type="checkbox"/> 50.73(a)(2)(i)(C)			<input type="checkbox"/> OTHER		Specify in Abstract below or in NRC Form 366A	

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT

Dean Baker, Licensing Engineer

TELEPHONE NUMBER (Include Area Code)

423-452-4589

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

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX

14. SUPPLEMENTAL REPORT EXPECTED

☐ YES (If yes, complete 15. EXPECTED SUBMISSION DATE) ☒ NO

15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR

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

On October 30, 2017, at 0942 Eastern Daylight Time (EDT) Watts Bar Nuclear Plant (WBN) operations personnel received a Main Control Room (MCR) alarm for low control room positive pressure. At 0943 EDT, a Control Room Envelope (CRE) door was found ajar and immediately closed. Technical Specification 3.7.10 Control Room Emergency Ventilation System (CREVS) was declared not met for both trains, and Limiting Conditions for Operation (LCO) Condition B was entered for Unit 1 (Mode 1) and Condition G was entered for Unit 2 (Mode 5). At 0945 EDT the alarm cleared, CREVS was declared operable and LCO 3.7.10, Conditions B and G were exited. The loss of the control room envelope is being reported as a loss of safety function needed to mitigate the consequences of an accident.

The cause of this issue is a human performance error in that an individual leaving the control building complex failed to confirm closure of the MCR envelope boundary door. Corrective actions have been generated to develop and install an engineering feature to inform personnel closing the door that it is fully shut and latched.

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Information Services Branch (T-2 F43), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Watts Bar Nuclear Plant, Unit 1	05000390	2017	- 014	- 00

NARRATIVE**I. PLANT OPERATING CONDITIONS BEFORE THE EVENT**

Watts Bar Nuclear Plant (WBN) Unit 1 was in Mode 1 at 100 percent rated thermal power (RTP). WBN Unit 2 was in Mode 5.

II. DESCRIPTION OF EVENT**A. Event Summary**

On October 30, 2017, at 0942 Eastern Daylight Time (EDT) Watts Bar Nuclear Plant (WBN) operations personnel received a Main Control Room (MCR) alarm for low control room positive pressure. At 0943 EDT, a Control Room Envelope (CRE) door {EII:DR} was found ajar and immediately closed. Technical Specification (TS) 3.7.10 Control Room Emergency Ventilation System (CREVS) {EII:VI} was declared not met for both trains and Limiting Conditions for Operation (LCO) Condition B was entered for Unit 1 (Mode 1) and Condition G was entered for Unit 2 (Mode 5). At 0945 EDT the alarm cleared, CREVS was declared operable and LCO 3.7.10, Conditions B and G were exited.

This event is being reported to the Nuclear Regulatory Commission (NRC) under 10 CFR 50.73(a)(2)(v)(D) as a condition that could have prevented the fulfillment of a safety function needed to mitigate the consequences of an accident.

B. Inoperable Structures, Components, or Systems that Contributed to the Event

No inoperable equipment contributed to this event.

C. Dates and Approximate Times of Occurrences

Date	Time (EDT)	Event
10/30/17	0942	A MCR alarm was received for low control room positive pressure.
10/30/17	0943	A CRE door was found ajar and immediately closed. TS 3.7.10 CREVS was declared not met for both trains, and Conditions B (Unit 1) and G (Unit 2) were entered.
10/30/17	0945	The MCR alarm cleared, CREVS was declared operable and LCO 3.7.10, Conditions B and G were exited.

D. Manufacturer and Model Number of Components that Failed During the Event

There were no failed components that contributed to this event.

E. Other Systems or Secondary Functions Affected

No other systems or secondary functions were affected.



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NARRATIVE

F. Method of discovery of each Component or System Failure or Procedural Error

The issue was identified by the receipt of a MCR low pressure alarm.

G. Failure Mode and Effect of Each Failed Component

There was no equipment failure associated with this event.

H. Operator Actions

Upon receipt of the alarm, operations personnel promptly identified the door that was open and closed the door.

I. Automatically and Manually Initiated Safety System Responses

Upon receipt of the alarm, operations personnel promptly identified the door that was open and closed the door.

III. CAUSE OF THE EVENT

A. The cause of each component or system failure or personnel error, if known.

The cause of this issue is a human performance error in that an individual leaving the control building complex failed to confirm closure of the MCR envelope boundary door.

B. The cause(s) and circumstances for each human performance related root cause.

The cause of this issue is a human performance error in that an individual leaving the control building complex failed to confirm closure of the MCR envelope boundary door.

IV. ANALYSIS OF THE EVENT

The CRE is required to be operable in Modes 1 through 6. Operability requires integrity of the CRE such that it will have a low unfiltered inleakage during accident conditions to maintain the dose to operators within the requirements of 10 CFR 50, General Design Criterion 19. TS allow the CRE boundary to be opened intermittently under administrative control, normally to allow routine personnel ingress and egress from the control room. Administrative controls in the case of boundary doors are that an individual is in control of the door when it is opened. Issues with closing the Unit 1 MCR boundary door C036 and the Unit 2 MCR boundary door C054 have occurred in the past. On October 30, 2017, an individual leaving the control room left the Unit 1 MCR boundary door C036 ajar. This resulted in operations personnel entering TS LCO 3.7.10, Control Room Emergency Ventilation System (CREVS), for one or more CREVS trains inoperable due to an inoperable CRE boundary. Low positive pressure (less than 0.2 inches of water gauge (WG)) in the control room for 90 seconds results in a control room alarm. Upon receipt of the alarm, operations personnel promptly closed the CRE door. For this event, the CRE boundary was open approximately four minutes, including the alarm delay time. The licensing basis at WBN for a loss of coolant accident (LOCA) assumes instantaneous core damage and release, and therefore, a potential loss of safety function event occurred. The physics of such an event are that core damage and a containment

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NARRATIVE

release would take some period of time much greater than a few minutes. The CRE door would be expected to be closed with high confidence well in advance of an actual radiological release.

V. ASSESSMENT OF SAFETY CONSEQUENCES

A review of this event indicates, when considering the actual system capability and the response of equipment and personnel, a loss of safety function capable of impacting public health and safety did not occur with respect to the Control Room. The consequences of this event are judged to be low, and are not modeled in the plant Probabilistic Risk Assessment (PRA).

- A. Availability of systems or components that could have performed the same function as the components and systems that failed during the event

The balance of the CRE equipment designed to protect the pressure boundary remained operable.

- B. For events that occurred when the reactor was shut down, availability of systems or components needed to shutdown the reactor and maintain safe shutdown conditions, remove residual heat, control the release of radioactive material, or mitigate the consequences of an accident

The balance of the CRE equipment designed to protect the pressure boundary remained operable.

- C. For failure that rendered a train of a safety system inoperable, an estimate of the elapsed time from the discovery of the failure until the train was returned to service

The CRE boundary was open approximately four minutes, including alarm delay time.

VI. CORRECTIVE ACTIONS

This event was entered into the Tennessee Valley Authority (TVA) Corrective Action Program and is being tracked under Condition Report (CR) 1353102.

- A. Immediate Corrective Actions

The open control room door was identified and promptly closed.

- B. Corrective Actions to Prevent Recurrence or to Reduce Probability of Similar Events Occurring in the Future

Corrective actions have been generated to develop and install an engineering feature on MCR doors C036 and C054 to inform personnel closing either of these doors that it is fully shut and latched.

VII. PREVIOUS SIMILAR EVENTS AT THE SAME SITE

LER 390/2017-007-001 reported multiple instances over a three year period where the control room boundary door had been left open due to personnel error and promptly closed by operations in response to a low control room positive pressure alarm. The causes of these events are similar.



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NARRATIVE

VIII. ADDITIONAL INFORMATION

None.

IX. COMMITMENTS

None.