



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

July 15, 2016

10 CFR 50.73

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

Watts Bar Nuclear Plant, Unit 1  
Facility Operating License No. NPF-90  
NRC Docket No. 50-390

**Subject: Licensee Event Report 390/2016-009-00, Failure to Complete Surveillance Requirements Causes Conditions Prohibited by the Technical Specifications**

Enclosed please find Licensee Event Report (LER) 50-390/2016-009-00 that has been prepared and submitted pursuant to Title 10 of the *Code of Federal Regulations*, (10 CFR) 50.73(a)(2)(i)(B), conditions prohibited by Technical Specifications. Specifically, this LER reports conditions where compliance with Technical Specifications 3.6.3, Containment Isolation Valves, Required Actions were not met.

Should you have questions regarding this report, please contact Gordon Arent, Manager, Site Licensing at (423) 365-2004.

Respectfully,

A handwritten signature in blue ink, appearing to read 'Paul Simmons', with a long horizontal flourish extending to the right.

Paul Simmons  
Site Vice President  
Watts Bar Nuclear Plant

U.S. Nuclear Regulatory Commission  
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July 18, 2016

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 FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOF-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.

<b>1. FACILITY NAME</b> Watts Bar Nuclear Plant, Unit 1	<b>2. DOCKET NUMBER</b> 05000390	<b>3. PAGE</b> 1 OF 6
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**4. TITLE**  
Failure to complete Surveillance Requirements Causes Conditions Prohibited by the Technical Specifications

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
11	11	2015	2016	009	00	07	18	2016	N/A	N/A
									FACILITY NAME	DOCKET NUMBER
									N/A	N/A

**9. OPERATING MODE**      **11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)**

MODE 4	<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  0	<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 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 checked="" 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 Russell A. Stroud	TELEPHONE NUMBER (Include Area Code) 423-365-1435
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**13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT**

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

<b>14. SUPPLEMENTAL REPORT EXPECTED</b> <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	<b>15. EXPECTED SUBMISSION DATE</b> MONTH:    DAY:    YEAR:
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**ABSTRACT** (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On November 11, 2015, Watts Bar Nuclear Plant Unit 1 (WBN1) transitioned from MODE 5 to MODE 4 without completing Technical Specification (TS) Limiting Condition for Operation (LCO) 3.6.3, Containment Isolation Valves, Required Action A.2. Specifically, WBN1 operations personnel did not verify that the train A Essential Raw Cooling Water (ERCW) supply to the containment building upper compartment cooler flow path was isolated before entering MODE 4. In addition, on November 21, 2015, the failure to conduct a surveillance of the train B ERCW supply inboard containment isolation check valve should have required completion of TS LCO 3.6.3 Required Actions A.1, but the required verifications were not performed until January 30, 2016. The above conditions were not recognized as reportable conditions until May 18, 2016.

NRC FORM 366A  
(11-2015)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104

EXPIRES: 10/31/2018



## LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

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1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Watts Bar Nuclear Plant, Unit 1	05000390	2016	- 009	- 00

### NARRATIVE

#### I. Plant Operating Conditions Before the Event

On November 11, 2015, at 1830 Eastern Standard Time (EST) Watts Bar Nuclear Plant Unit 1 (WBN1) entered MODE 4 Hot Shutdown from MODE 5 Cold Shutdown, following a maintenance outage that commenced on November 7, 2015. This date has been determined to be the event date.

#### II. Description of Events

##### A. Event

On November 11, 2015, WBN1 transitioned from MODE 5 to MODE 4 without completing Technical Specification (TS) Limiting Condition for Operation (LCO) 3.6.3, Containment Isolation Valves, Required Action A.2. Specifically, WBN1 operations personnel did not recognize that the previous isolation of the train A Essential Raw Cooling Water (ERCW) [EIS: BI] supply to the containment building train A upper compartment cooler (UCC) [EIS: BK] on September 25, 2015 prevented operations personnel from subsequently performing surveillance testing of the train A and train B UCC ERCW supply containment isolation check valves (1-CKV-67-580A and 1-CKV-67-580D, respectively) [EIS: ISV] and that the supply flow path was required to be verified closed before entering MODE 4.

In addition to the above, on November 21, 2015, the failure to conduct surveillance of the train B ERCW supply inboard containment isolation check valve should have required completion of TS LCO 3.6.3 Required Actions A.1 but the required verifications were not performed until January 30, 2016. When the missed surveillance was identified, WBN1 operations personnel invoked TS Surveillance Requirement (SR) 3.0.3. However, subsequent discussions with the NRC resident inspection staff and further reportability reviews revealed that the allowances provided in SR 3.0.3 were not appropriate in this instance because the surveillance had been attempted prior to expiration of the SR Frequency.

These two plant conditions were not recognized as reportable conditions until May 18, 2016 and are being reported in accordance with 10 CFR 50.73(a)(2)(i)(B) as conditions prohibited by the TS.

##### B. Status of structures, components, or systems that were inoperable at the start of the event and that contributed to the event.

On September 22, 2015, during the WBN1 thirteenth refueling outage (1R13), plant operators isolated the ERCW supply line to the train A UCC. There was no additional equipment that was inoperable at that time that contributed to this event.

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### NARRATIVE

#### C. Dates and approximate times of occurrences.

Date	Event
July 29, 2015	Completed quarterly train A and B check valve testing of the ERCW supply to UCCs
September 22, 2015	TS 3.6.3, Containment Isolation Valves, Required Actions were entered for the isolated train A ERCW supply line.
November 7, 2015	WBN1 commenced maintenance outage.
November 11, 2015	WBN1 entered MODE 4 after a maintenance outage.
November 16, 2015	Quarterly train A and B check valve testing of the ERCW supply to UCCs cannot be completed
November 21, 2015	Expiration of SR 3.6.3.4 (92-day) Frequency
January 25, 2016	Quarterly train A and B check valve testing of the ERCW supply to UCCs cannot be completed
January 30, 2016	Plant operations personnel recognize that the last successful train B quarterly check valve surveillance testing was completed on July 29, 2015
May 18, 2016	Determined that these plant conditions were reportable as conditions prohibited by TS.

On July 29, 2015, WBN1 plant personnel satisfactorily completed the train A and train B check valve testing of the ERCW supply to UCCs in accordance with site surveillance procedures.

On September 22, 2015, WBN1 was in MODE 5 and shortly after commencement of 1R13 (reactor trip breakers were opened September 20, 2015) plant outage workers observed water leaking from the 1A UCC. Further examination revealed that the ERCW supply line to the train A UCC had ruptured and was spilling water into an adjacent area. Accordingly, plant operators took action to isolate the ERCW supply line to the train a UCC. TS 3.6.3, Containment Isolation Valves, Required Actions were entered for the isolated train A ERCW supply line.

On November 11, 2015, WBN1 entered MODE 4 from MODE 5, following a maintenance outage that commenced on November 7, 2015. (Event Date)

On November 16, 2015, WBN1 plant personnel attempted, but could not satisfactorily complete, a portion of the train A quarterly check valve surveillance testing of the ERCW supply to UCCs because the train 1A supply had been isolated in response to the ruptured ERCW supply line. Specifically, 1-CKV-67-580A could not be surveilled because it was between valves used to isolate the train A UCC ruptured ERCW supply line. Relatedly, train B check valve 1-CKV-67-580D could not be tested during the quarterly surveillance because the train A ERCW supply (which was isolated) is used to establish testing conditions.

On November 25, 2015, SR 3.6.3.4 Frequency expired.



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**NARRATIVE**

On January 25, 2016, performance of the train A and B quarterly check valve surveillance testing of the ERCW supply to UCCs was scheduled, but could not be completely satisfied due to the isolated train A supply line.

On, January 30, 2016, during document reviews, plant operations personnel recognized that the last successful completion of the train B quarterly check valve surveillance testing of the ERCW supply to UCCs had been completed on July 29, 2015, which was beyond the quarterly periodicity, which expired on November 21, 2015. In response, plant operations personnel invoked TS SR 3.0.3, for a missed surveillance.

On May 18, 2016, it was determined that the plant conditions described above were reportable events as conditions prohibited by TS. (Discovery Date)

- D. Manufacturer and model number (or other identification) of each component that failed during the event.

There were no components that failed during the event. The portions of the affected ERCW supply line to the 1A and 1B UCC are two inch stainless steel piping. The valves affected by this condition are stainless steel two inch check valves

- E. Other systems or secondary functions affected.

There were no other systems or secondary functions affected by this condition.

- F. Method of discovery of each component or system failure or procedural error

The discovery of the condition prohibited by TS was identified by the NRC Senior Resident Inspector and confirmed by a WBN reportability evaluation.

- G. The failure mode, mechanism, and effect of each failed component, if known.

There were no components that failed during the event.

- H. Operator actions

Other than the events described herein, there were no direct operator actions that influenced this event.

- I. Automatically and manually initiated safety system responses

There were no automatically or manually initiated safety system responses as a result of this event.

**III. Cause of the Event**

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### NARRATIVE

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

There were no component or system failures that caused to this event.

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

WBN Operations personnel performed a Cognitive Adverse Trend review that analyzed these events as well as other recent LCO classification errors, and concluded:

“Operations Licensed personnel have not applied adequate rigor to ensure the accurate identification and timely implementation of Limiting Conditions of Operability (LCO)” Specifically, “Operations Licensed personnel have not consistently employed a process that validates LCO entries through the use of the licensing bases documents. Management oversight in the Main Control Room has not corrected issues with timely documentation of LCO implementation.”

IV. Analysis of the Event

Based on subsequent WBN causal evaluations, it has been concluded that only partial compliance with TS LCO 3.6.3, Containment Isolation Valves, Required Action A.2 could be confirmed. Specifically, TS LCO 3.6.3 Required Action A.2, requires verification that the affected penetration flow path is isolated prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment, and it could not be confirmed that inboard train A ERCW supply isolation valve (1-FCV-67-295) occurred prior to Unit 1 MODE 4 entry on November 11, 2015.

Additionally, operations personnel had initially invoked SR 3.0.3 when it was identified that the SR Frequency had expired for 1-CKV-67-580D. However, subsequent reviews revealed that this general TS provision did not apply and the surveillance should have been declared not met when the specified frequency expired on November 25, 2015.

V. Assessment of Safety Consequences

Safety limits and limiting safety system settings were not affected by this condition. There were no safety system responses associated with this condition. There were no component failures associated with this condition. There was no loss of safety function as a result of this condition.

VI. Corrective Actions

Corrective actions are being managed by Tennessee Valley Authority's corrective action program under Condition Reports (CRs) 1174000, 1172114, 1169297, 1164837, 1131257, and 1131256.

NRC FORM 366A  
(11-2015)

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### NARRATIVE

#### A. Immediate Corrective Actions

Compliance with TS 3.6.3 Required Action A.2 was achieved on January 30, 2016, when the required containment penetration isolation valves were confirmed to be closed.

#### B. Corrective Actions to Prevent Recurrence or to reduce probability of similar events occurring in the future.

The WBN Operations Superintendent will present a "case study" of the all events identified in the cognitive adverse trend evaluation to all licensed operators. The training will review TS issues with all licensed operators to ensure understanding.

### VII. Additional Information

#### A. Previous similar events at the same plant

A review of internal operating experience did not reveal any previously reported events or conditions that involved the same underlying concern or reason as this event, such as the same root cause, failure, or sequence of events. However, recent similar events at WBN1 have been identified and are being addressed through a Cognitive Adverse Trend review that analyzed these events.

#### B. Additional Information

None.

#### C. Safety System Functional Failure Consideration (Reference NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," for definitions and guidance)

The event did not result in a safety system functional failure.

#### D. Scrams with Complications Consideration (Reference NEI 99-02 for definitions and guidance)

There was not a unit SCRAM complicated or otherwise associated with this event.

### VIII. Commitments

None.