



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

January 8, 2014

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 390/2012-003 Revision 1, Entry into Mode 4 without Meeting LCO 3.4.12, "Cold Overpressure Mitigation System (COMS)"**

This supplement updates Licensee Event Report (LER) 390/2012-003. This supplement revises the LER to correct the apparent cause of Watts Bar Nuclear Plant (WBN) not meeting Limiting Condition for Operation 3.4.12, "Cold Overpressure Mitigation System (COMS)," Conditions A and B on two occasions since August 10, 2009. The apparent cause was determined to be ineffective use of human performance tools. This report is being submitted in accordance with 10 CFR 50.73(a)(2)(i)(B), any operation or condition which was prohibited by the plant's Technical Specifications.

There are no regulatory commitments in this letter. Please direct any questions concerning this matter to Gordon Arent, WBN Licensing Director, at (423) 365-2004.

Respectfully,

A handwritten signature in blue ink, reading "Timothy P. Cleary", is written over a horizontal line.

Timothy P. Cleary
Site Vice President
Watts Bar Nuclear Plant

Enclosure
cc: See Page 2

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Enclosure
cc (Enclosure):

NRC Regional Administrator - Region II

NRC Senior Resident Inspector - Watts Bar Nuclear Plant

LICENSEE EVENT REPORT (LER)

(See reverse for required number of
digits/characters for each block)

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 Section (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, 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.

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4. TITLE
Entry into Mode 4 Without Meeting LCO 3.4.12, "Cold Overpressure Mitigation System (COMS)"

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
09	21	2009	2012	- 003 -	01	01	08	2014	N/A	N/A
									FACILITY NAME	DOCKET NUMBER
									N/A	N/A

9. OPERATING MODE
4

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

10. POWER LEVEL 0	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)
	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)
	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)
	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)
	<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)(C)	<input type="checkbox"/> OTHER
<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)(v)(D)	Specify in Abstract	

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME Tommy Morgan, Watts Bar Site Licensing Engineer	TELEPHONE NUMBER (Include Area Code) 423-365-1401
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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 September 21, 2009, Watts Bar Nuclear Plant Unit 1 (WBN) entered Mode 4 as part of the Cycle 9 refueling outage (RFO). When Mode 4 was entered, two Safety Injection (SI) pumps and more than one Centrifugal Charging Pump (CCP) were capable of injecting into the Reactor Coolant System (RCS). Technical Specification (TS) 3.4.12, "Cold Overpressure Mitigation System (COMS)," requires that a maximum of one CCP and no SI pumps be capable of injecting into the RCS when in Modes 4, 5, or 6 (with the reactor head on). As a result, Limiting Condition for Operation (LCO) 3.4.12 was not met and the applicable Required Actions were not taken within their associated Completion Times. Therefore, WBN was in a condition prohibited by the TSs.

A review of previous operating data revealed this condition also existed on April 4, 2011, when WBN entered Mode 4 as a part of the Cycle 10 RFO.

The cause of this event was that personnel were ineffective at the use of human performance tools. Specifically, personnel were ineffective at self checking to ensure all required procedures were identified during an impact review for a License Amendment request.

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NARRATIVE

I. PLANT CONDITIONS

Watts Bar Nuclear Plant Unit 1 (WBN) was in Mode 4 at 0% percent rated thermal power (RTP).

II. DESCRIPTION OF EVENT

A. Event

Technical Specification (TS) 3.4.12, "Cold Overpressure Mitigation System (COMS)," controls Reactor Coolant System (RCS) [EIS Code AB] pressure at low temperatures so the integrity of the reactor coolant pressure boundary is not compromised by violating the pressure and temperature limits. Limiting Condition for Operation (LCO) for TS 3.4.12 requires that COMS must be Operable with a maximum of one charging pump (CCP) [EIS Code P] and no safety injection (SI) pumps [EIS Code P] capable of injecting into the RCS when in Modes 4, 5, and Mode 6 (when the reactor vessel head is on).

On September 21, 2009, WBN entered Mode 4 at 0420 Eastern Daylight Time (EDT) as part of the Cycle 9 refueling outage (RFO). When Mode 4 was entered, two SI pumps and more than one CCP were capable of injecting into the RCS. As a result, LCO 3.4.12 was not met and the applicable Required Actions were not taken within their associated Completion Times. Therefore, WBN was in a condition prohibited by the Technical Specifications, which is reportable under 10 CFR 50.73(a)(2)(i)(B).

A review of previous operating data revealed this condition also existed on April 4, 2011, when WBN entered Mode 4 at 0454 EDT as a part of the Cycle 10 RFO.

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

None

C. Dates and Approximate Times of Major Occurrences

Date	Time (EDT)	Event
March 3, 2005	N/A	NRC Issuance of Amendment 55 Regarding Mode Change Limitations Using the Consolidated Line Item Improvement Process
September 21, 2009	0420	LCO 3.4.12 not met due to two SI pumps and more than one CCP being capable of injecting into the RCS while in Mode 4
April 4, 2011	1454	LCO 3.4.12 not met due to two SI pumps and more than one CCP being capable of injecting into the RCS while in Mode 4
August 10, 2012	1404	TVA discovered that WBN procedure GO-6, "Unit Shutdown From Hot Standby to Cold Shutdown," was not consistent with TS 3.4.12, and therefore LCO 3.4.12 was not met and the applicable Required Actions were not taken within their associated Completion Times on September 21, 2009 and April 4, 2011

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II. DESCRIPTION OF EVENT (continued)

D. Other Systems or Secondary Functions Affected

None

E. Method of Discovery

During a review of an Operations procedure against TS 3.4.12, the WBN Operations Department identified that a possible discrepancy existed between TS 3.4.12 and the Operations procedure. On August 10, 2012, the WBN Operations and Licensing Departments concluded that the Operations procedure was not consistent with TS 3.4.12, resulting in WBN not meeting LCO 3.4.12 and the applicable Required Actions not being taken within their associated Completion Times on September 21, 2009 and April 4, 2011.

F. Operator Actions

None

G. Safety System Responses

None

III. CAUSE OF EVENT

The cause of this event was the operator assigned to conduct the impact review for the License Amendment request associated with WBN TS Amendment 55 failed to identify all impacted procedures. This indicates a human performance failure associated with self checking.

The original causal analysis concluded that an increase in qualifications would resolve this issue. Upon further review, it was determined that a Senior Reactor Operator (SRO) License would not ensure that impacted procedures are appropriately identified and dispositioned.

The unidentified impact to the Operations procedure resulted in WBN not meeting LCO 3.4.12 and the applicable Required Actions not being taken within their associated Completion Times on September 21, 2009 and April 4, 2011.

IV. ANALYSIS OF THE EVENT

A WBN Operations procedure provided actions to perform a unit shutdown from Hot Standby at normal operating temperature and pressure to Cold Shutdown, including the transition from Mode 3 to Mode 4. This procedure allowed up to four hours to secure both SI pumps and one CCP after entering Mode 4. This four hour allowance was consistent with TS 3.4.12 prior to the implementation of WBN TS Amendment 55, but Amendment 55 removed the four hour allowance. During the implementation of WBN TS Amendment 55, the impact on the Operations procedure was not identified, and as a result, LCO 3.4.12 was not met and the applicable Required Actions were not taken within their associated Completion Times on September 21, 2009, and April 4, 2011, when transitioning from Mode 3 to Mode 4 for scheduled RFOs.

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V. ASSESSMENT OF SAFETY CONSEQUENCES

There were no safety consequences resulting from this event. The September 21, 2009, and April 4, 2011, events did not affect systems or components required to shutdown and maintain safe shutdown conditions, remove residual heat, and mitigate the consequences of an accident. In addition, there were no instances of RCS pressure rise which would have challenged the RCS pressure boundary. Therefore, there was no impact on the health and safety of the public.

VI. CORRECTIVE ACTIONS

A. Immediate Corrective Actions

WBN procedure GO-6, "Unit Shutdown From Hot Standby to Cold Shutdown," was revised on August 16, 2012, to be consistent with TS 3.4.12.

B. Corrective Actions to Prevent Recurrence

This event represents a latent human performance error. As such, there is no direct corrective actions associated with the human performance issues associated with the apparent cause. However, at the time of the event, human performance guidance was limited to a Business Practice Handbook Appendix (BP-253). Since that time, the Human Performance Program has been developed into a Nuclear Power Group Standard Program and Practice Procedure, NPG-SPP-22.202, Human Performance Tools. This procedure has listing of operator tools, practices, and procedures. Therefore, the likelihood of a human error has been significantly reduced and no further actions are required.

VII. ADDITIONAL INFORMATION

A. Failed Components

None

B. Previous LERs on Similar Events

On July 8, 2011, TVA submitted Revision 1 to LER 390/2011-001, "Safety Injection Pump Capable of Injecting into Reactor Coolant System in Mode 5." This LER described an incident where LCO 3.4.12 was not met because a SI pump was capable of injecting into the RCS while in Mode 5. In this event, an SI pump was being used to fill and vent a Cold Leg Accumulator (CLA). Shortly after starting the SI pump, an abnormal rise in RCS pressure occurred, prompting the operators to secure the SI pump. The abnormal RCS pressure rise occurred due to a crosstie valve being open. Prior to this event, a temporary clearance lift had been issued to open the subject crosstie valve for SI full flow testing, however, the crosstie valve was not closed after the testing, resulting in the abnormal RCS pressure rise.

The cause of WBN not meeting LCO 3.4.12 and the applicable Required Actions not being taken within their associated Completion Times in LER 390/2012-003 was that in impact to an Operations procedure was not identified as a result of a non-licensed individual performing the impact review. Therefore the event described in LER 390/2011-001 did not involve the same underlying cause or failure as the event being reported in this LER.

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VII. ADDITIONAL INFORMATION (continued)

C. Additional Information

None

D. Safety System Functional Failure

This event did not result in a safety system functional failure in accordance with 10 CFR 50.72(a)(2)(v) and NEI 99-02.

E. Loss of Normal Heat Removal Consideration

None

VIII. COMMITMENTS

None