Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402

CNL-15-034

February 6, 2015

10 CFR 50.46

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

Watts Bar Nuclear Plant, Unit 2
Construction Permit No. CPPR-92
NRC Docket Nos. 50-391

Subject: **10 CFR 50.46 - 30-Day Report for Watts Bar, Unit 2**

Reference: TVA Letter to NRC, "10 CFR 50.46 - Annual Report for Watts Bar, Units 1 and 2," dated April 25, 2014 [ML14119A332]

The purpose of this letter is to provide a 30-day report of changes and errors to the calculated peak cladding temperature (PCT) for the Watts Bar Nuclear Plant (WBN), Unit 2, Emergency Core Cooling System (ECCS) evaluation model. This report is required in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 50.46, "Acceptance Criteria for Emergency Core Cooling Systems for Light-Water Nuclear Power Reactors," paragraph (a)(3)(ii).

The last 10 CFR 50.46 annual report for WBN Unit 2 was submitted to the United States Nuclear Regulatory Commission (NRC) on April 25, 2014 (Reference). The last annual report (Reference) indicated that in accordance with 10 CFR 50.46(a)(3)(ii), subsequent changes or errors affecting the WBN Unit 2 large break loss of coolant accident (LBLOCA) analysis are considered significant for reporting purposes because the absolute magnitude of the accumulated changes in PCT since the last LBLOCA analysis exceeds 50 degrees Fahrenheit.

On January 7, 2015, Westinghouse Electric Company (WEC) notified Tennessee Valley Authority (TVA) of the estimated effect of a change in accumulator injection line resistances for the WBN Unit 2 small break loss-of-coolant accident (SBLOCA) analysis and the LBLOCA analysis. The identified change to the LBLOCA analysis is reportable to the NRC in a 30-day report for WBN Unit 2, in accordance with 10 CFR 50.46(a)(3)(ii).

As indicated in the Enclosure, the current updated (net) licensing basis PCT for the WBN Unit 2, LBLOCA analysis of record remains unchanged at 1711 degrees Fahrenheit. The updated (net) licensing basis PCT for the SBLOCA evaluation model is unchanged from the SBLOCA analysis of record baseline PCT, and remains at 1184 degrees Fahrenheit.

There are no regulatory commitments in this letter. Please direct questions concerning this report to Gordon Arent at (423) 365-2004.

Respectfully,

J. W. Shea
Vice President, Nuclear Licensing

Enclosure:
Watts Bar Nuclear Plant, Unit 2, 10 CFR 50.46 30-Day Report

cc (Enclosures):

NRC Regional Administrator - Region II
NRC Senior Resident Inspector - Watts Bar Nuclear Plant Unit 2

ENCLOSURE

WATTS BAR NUCLEAR PLANT, UNIT 2
10 CFR 50.46 30-DAY REPORT

In accordance with the reporting requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) 50.46(a)(3)(ii), the following is a summary of the limiting design basis loss of coolant accident (LOCA) analysis results established using the current Watts Bar Nuclear Plant (WBN) Emergency Core Cooling System evaluation models for Unit 2. This report describes the changes and errors affecting the calculated peak cladding temperatures (PCTs) since the last analysis of record was submitted to the Nuclear Regulatory Commission (NRC).

The last 10 CFR 50.46 annual report for WBN Unit 2 was submitted to the NRC on April 25, 2014 (Reference 1). The last annual report (Reference 1) indicated that in accordance with 10 CFR 50.46(a)(3)(ii), subsequent changes or errors affecting the WBN Unit 2 large break loss of coolant accident (LBLOCA) analysis are considered significant for reporting purposes because the absolute magnitude of the accumulated changes in PCT since the last LBLOCA analysis exceeds 50 degrees Fahrenheit (°F).

Table 1 lists the changes and errors in the LBLOCA and small break loss of coolant accident (SBLOCA) analyses since each of the respective analysis of record (AOR) and the associated effect on PCT. The change that was not previously identified in reference 1 is described in a note to Table 1.

The updated (net) licensing basis PCT for the LBLOCA and SBLOCA remain unchanged from the last annual report (Reference 1).

ENCLOSURE

WATTS BAR NUCLEAR PLANT, UNIT 2
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Table 1

Year	Description	LBLOCA ΔPCT (°F)*	LBLOCA |ΔPCT| (°F)*	SBLOCA ΔPCT (°F)*	SBLOCA |ΔPCT| (°F)*	Note	Reference
2013	LBLOCA AOR PCT	1766	---	---	---	---	2
2010	SBLOCA AOR PCT	---	---	1184	---	---	3
2013	Elevations for Heat Slab Temperature Initialization	0	0	---	---	---	4
2013	Heat Transfer Model Error Corrections	0	0	---	---	---	4
2013	Correction to Heat Transfer Node Initialization	0	0	---	---	---	4
2013	Mass Conservation Error Fix	0	0	---	---	---	4
2013	Correction to Split Channel Momentum Equation	0	0	---	---	---	4
2013	Heat Transfer Logic Correction for Rod Burst Calculation	0	0	---	---	---	4
2013	Changes to Vessel Superheated Steam Properties	0	0	---	---	---	4
2013	Update to Metal Density Reference Temperatures	0	0	---	---	---	4
2013	Decay Heat Model Error Corrections	0	0	---	---	---	4
2013	Correction to the Pipe Exit Pressure Drop Error	0	0	---	---	---	4
2013	WCOBRA/TRAC File Dimension Error Correction	0	0	---	---	---	4
2013	Revised Heat Transfer Multiplier Distributions	-55	55	---	---	---	4
2013	Initial Fuel Pellet Average Temperature Uncertainty Calculation	0	0	---	---	---	4
2014	HOTSPOT Burst Strain Error	0	0	---	---	---	5
2014	Cold Leg Accumulator Injection Lines Hydraulic Resistance Changes	0	0	0	0	1	---
---	**Updated (net) licensing basis PCT** (AOR PCT + ∑ ΔPCT)	**1711**	---	**1184**	---	---	---
---	**Cumulative sum of PCT changes** ∑ |ΔPCT|	---	**55**	0	**0**	---	---

ENCLOSURE

WATTS BAR NUCLEAR PLANT, UNIT 2
10 CFR 50.46 30-DAY REPORT

Note 1:

Pre-operational testing conducted at WBN Unit 2 determined the accumulator injection line hydraulic resistances used in the SBLOCA and LBLOCA analyses should be changed. The change in the accumulator injection line resistances was estimated to have a negligible impact on the SBLOCA analysis and LBLOCA analysis results, leading to an estimated PCT impact of 0°F.

References:

1. Letter from TVA to NRC, "10 CFR 50.46 - 30-Day and Annual Report for 2013," dated April 25, 2014 [ML14119A332]

2. WCAP-17093-P, Revision 1, "Best Estimate Analysis of the Large Break Loss of Coolant Accident for the Watts Bar Unit 2 Nuclear Plant Using the ASTRUM Methodology," June 2013

3. WBT-D-1460, "Final Small Break LOCA Summary Report for WBN Unit 2," January 2010

4. Letter from TVA to NRC, "Watts Bar Nuclear Plant, Unit 2 - Emergency Core Cooling system Evaluation Model Changes - 30 Day Report - 10 CFR 50.46 Notification," dated August 28, 2013.[ML13246A076]

5. Letter from TVA to NRC, "10 CFR 50.46 - 30-Day Report for Watts Bar, Units 1 and 2," dated February 28, 2014.[ML14064A431]