

April 26, 2018

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52-026

ND-18-0494
10 CFR 50.46(a)(3)(ii)

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555-0001

Southern Nuclear Operating Company
Vogtle Electric Generating Plant Units 3 and 4
10 CFR 50.46 Thirty Day Report

Ladies and Gentlemen:

The purpose of this letter is to provide a required report in accordance with 10 CFR 50.46, "Acceptance Criteria for Emergency Core Cooling Systems for Light-Water Nuclear Power Reactors," for the Vogtle Electric Generating Plant (VEGP) Units 3 and 4 combined licenses (COLs), License Nos. NPF-91 and NPF-92, respectively.

On March 31, 2017, Southern Nuclear Operating Company (SNC) submitted license amendment request (LAR)-17-009 [ML17090A209]. The requested amendment proposed changes to UFSAR Tier 2 and COL Appendix C (and plant-specific Tier 1) information with regard to the passive core cooling system (PXS) low pressure injection and fourth-stage automatic depressurization system (ADS) flow resistances.

On February 28, 2018, the NRC approved the changes proposed in LAR-17-009 as Amendment No. 111 for Vogtle Unit 3 and Amendment No. 110 for Vogtle Unit 4 [ADAMS Package – ML18026A565]. SNC incorporated these amendments into the Vogtle 3&4 Licensing Basis via licensing document change request (LDCR)-2017-040 on March 28, 2018. Analyses performed by Westinghouse Electric Company (WEC) have shown that the design changes associated with LAR-17-009 result in an estimated peak clad temperature (PCT) increase of 144°F for the small break loss-of-coolant accident (SBLOCA) transient. This increase is in addition to SBLOCA PCT increases of 32°F and 13°F reported in WEC letter DCP_NRC_003328 dated March 23, 2018 [ML18086A025], as referenced in SNC letter ND-18-0393 dated April 6, 2018 [ML18096A283].

The attachment to this letter provides the background, affected evaluation model, estimated effect for the changes, and an updated SBLOCA PCT rackup sheet. The attachment refers to LAR-114 and LAR-133, which are Westinghouse's LAR numbers for SNC LAR-16-012 and LAR-17-009, respectively.

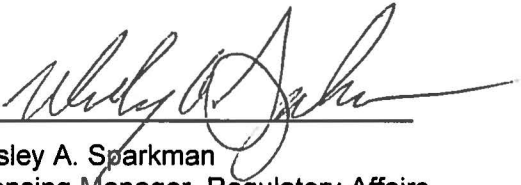
A full SBLOCA reanalysis is scheduled to be performed and implemented in an upcoming LAR. The LAR will incorporate cumulative design changes, including those from LAR-16-012 and

LAR-17-009, and update the licensing basis accordingly. This LAR is currently scheduled to be submitted April 16, 2019.

Southern Nuclear Operating Company's (SNC's) COLs for VEGP Units 3 and 4 incorporate by reference Appendix D to 10 CFR Part 52, and thus, utilize the Peak Cladding Temperature (PCT) calculations performed by WEC. Therefore, the PCT calculations performed by WEC are applicable to the VEGP Units 3 and 4 COLs.

If there are any questions regarding this report, please contact Mr. Wesley Sparkman at (205) 992-5061.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Wesley A. Sparkman", is written over a solid horizontal line.

Wesley A. Sparkman
Licensing Manager, Regulatory Affairs
Southern Nuclear Operating Company

Attachment: 10 CFR 50.46 30-Day Report Content for the AP1000 Vogtle Units 3 & 4
SBLOCA Analysis of Record

Southern Nuclear Operating Company / Georgia Power Company

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Southern Nuclear Operating Company

ND-18-0494

Attachment

Vogtle Electric Generating Plant (VEGP) Units 3 and 4

**10 CFR 50.46 30-Day Report Content for the AP1000 Vogtle Units 3&4
SBLOCA Analysis of Record**

(This Attachment consists of 3 pages, including this cover page.)

AP1000 PLANT LAR-133 EVALUATION

Background

The design changes associated with License Amendment Request (LAR) 133 are changes to automatic depressurization system (ADS) Stages 1, 2, 3, and 4 line resistances and in-containment refueling water storage tank (IRWST) line resistances. These changes impact the **AP1000**[®] plant small break loss-of-coolant accident (SBLOCA) analysis. These items represent changes in plant configuration or associated set points, distinguished from an evaluation model change in Section 4 of WCAP-13451 [1].

Affected Evaluation Model(s)

1985 Westinghouse Advanced Plant Small Break LOCA Evaluation Model with NOTRUMP.

Estimated Effect

Updated SBLOCA calculations using the latest limiting SBLOCA transient have been performed to assess the impact of the changes to the ADS Stages 1 – 4 and IRWST injection line resistances associated with LAR-133. The updated calculations resulted in a 144°F PCT penalty, which is assessed against the AP1000 Core Reference Report analysis [2].

References

1. WCAP-13451, “Westinghouse Methodology for Implementation of 10 CFR 50.46 Reporting,” October 1992.
2. WCAP-17524-P-A, Revision 1, “AP1000 Core Reference Report,” May 2015.

Westinghouse LOCA Peak Clad Temperature Summary for Appendix K Small Break

Plant Name: AP1000 - Vogtle Units 3 & 4
Utility Name: Southern Nuclear Operating Company
Revision Date: 3/14/2018

Analysis Information

EM: NOTRUMP-AP **Analysis Date:** 8/26/2013 **Limiting Break Size:** 2 Inch
FQ: 2.6 **FdH:** 1.75
Fuel: RFA **SGTP (%):** 10
Notes:

	Clad Temp (°F)	Ref.	Notes
LICENSING BASIS			
Analysis-Of-Record PCT	663.5	1	
PCT ASSESSMENTS (Delta PCT)			
A. PRIOR ECCS MODEL ASSESSMENTS			
1 . NOTRUMP Bubble Rise/Drift Flux Model Inconsistencies	32	2	
B. PLANNED PLANT MODIFICATION EVALUATIONS			
1 . LAR-114 Evaluation	13	3, 4, 5	(a)
2 . LAR-133 Evaluation	144	6, 7	(b)
C. 2018 ECCS MODEL ASSESSMENTS			
1 . None	0		
D. OTHER*			
1 . None	0		
LICENSING BASIS PCT + PCT ASSESSMENTS	PCT = 852.5		

* It is recommended that the licensee determine if these PCT allocations should be considered with respect to 10 CFR 50.46 reporting requirements.

References

- 1 . WCAP-17524-P-A, Revision 1, "AP1000 Core Reference Report," May 2015.
- 2 . LTR-LIS-15-5, "Updates to the AP1000 Plant SBLOCA 10 CFR 50.46 PCT Rackups," January 2015.
- 3 . LTR-LIS-16-144, "Update to the AP1000 Plant SBLOCA 10 CFR 50.46 PCT Rackups for LAR-114," January 2017.
- 4 . LTR-LIS-17-59, "AP1000 Plant 10 CFR 50.46 Annual Notification and Reporting for 2016," March 2017.
- 5 . ND-16-0984 (ML16207A340), "Automatic Depressurization System (ADS) Stage 2, 3 & 4 Valve Flow Area Changes and Clarifications (LAR-16-012)," July 2016. Approved by NRC December 29, 2016 as Amendment 62 (ML16357A640).
- 6 . LTR-LIS-16-429, "Update of the AP1000 Plant SBLOCA 10 CFR 50.46 PCT Rackups for LAR-133," January 2017.
- 7 . ND-17-0443 (ML17090A209), "PXS/ADS Line Resistance Changes (LAR-17-009)," March 2017. Approved by NRC February 28, 2018 as Amendments 111 (VEGP Unit 3) and 110 (VEGP Unit 4) (ML18026A566/ML18026A571).

Notes:

- (a) The LAR-114 evaluation assesses the impact of reduced automatic depressurization system (ADS) Stage 2, 3, and 4 flow areas described in design change proposals (DCPs) 5051 and 5054.
- (b) The LAR-133 evaluation assesses the impact of updated ADS Stages 1 – 4 and In-Containment Refueling Water Storage Tank (IRWST) line resistances described in DCPs 4903 and 5138.