

July 14, 2016

MEMORANDUM TO: Jennifer Dixon-Herrity, Acting Branch Chief  
Licensing Branch 4  
Division of New Reactor Licensing  
Office of New Reactors

FROM: William (Billy) Gleaves, Sr. Project Manager */RA/*  
Licensing Branch 4  
Division of New Reactor Licensing  
Office of New Reactors

SUBJECT: AUDIT PLAN AND AUDIT REPORT FOR VOGTLE AND SUMMER  
(WEC83) CORE MAKEUP TANK VOLUME INCONSISTENCY

This memorandum provides to you both the audit plan and audit report for the subject matter.

As noted in the subject, both the audit plan and report pertain to both reactor projects. Both the audit plan and report have received the concurrence of the SRXB Branch Chief.

Attachments:

- 1) Audit plan for Core Makeup Tank Volume Inconsistency
- 2) Audit report for Core Makeup Tank Volume Inconsistency

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**DISTRIBUTION**

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**ADAMS Accession Number: ML16179A342 \* by email NRO-002**

<b>OFFICE</b>	DNRL/LB4:PM	DNRL/LB4:LA	DNRL/LB4:BC
<b>NAME</b>	BGleaves	RButler*	JDixon-Herrity
<b>DATE</b>	07/14/16	07/07/16	07/14/16

**OFFICIAL RECORD COPY**

## CORE MAKEUP TANK VOLUME INCONSISTENCY (LAR 14-12 & LAR 16-005)

### (WEC 83) AUDIT PLAN

LICENSEES Southern Nuclear Operating Company, Inc. (SNC)  
South Carolina Electric & Gas Company (SCE&G)

LOCATION Westinghouse Office  
11333 Woodglen Drive, Suite 202  
Rockville, MD 20852

DATE AND TIME 1 pm, June 23, 2016

### BACKGROUND

By letter dated May 12, 2016 (Reference 1), South Carolina Electric & Gas Company (SCE&G), the licensee for Virgil C. Summer Nuclear Station (VCSNS) Units 2 and 3, requests U.S. Nuclear Regulatory Commission (NRC) approval of an amendment of the combined licenses (COL) for VCSNS Units 2 and 3, NPF COL Numbers NPF-93 and NPF-94, respectively. In addition, by letter dated May 18, 2016, (Reference 2), Southern Nuclear Operating Company (SNC), the licensee for Vogtle Electric Generating Plant (VEGP) Units 3 and 4, requests NRC staff approval of an identical amendment of the COL for VEGP Units 3 and 4, NPF COL Numbers NPF-91 and NPF-92, respectively. The proposed license amendment requests (LARs) 14-12 and 16-005 would revise the updated Final Safety Analysis Report text and tables and make changes to COL Appendix A, Technical Specifications, related to the minimum volume of the passive core cooling system core makeup tanks (CMTs). Specifically, the LARs request to change the CMT volume from 2,500 ft<sup>3</sup> in the aforementioned documents to 2,487 ft<sup>3</sup> to be consistent with the value in the inspections, tests, analyses, and acceptance criteria in plant-specific Design Control Document Tier 1. The LARs state that the AP1000 small break loss-of-coolant-accident (SBLOCA) safety analysis supports the revision, as it already assumes a CMT volume of 2,487 ft<sup>3</sup>.

To support the NRC staff's safety evaluation of LAR 14-12 and LAR 16-005, this audit is planned to review applicable documentation relied upon to justify and demonstrate the continued conformance to applicable regulatory criteria.

### REGULATORY AUDIT BASIS

To support its safety evaluation of LAR 14-12 and LAR 16-005, NRC staff from the Reactor Systems, Nuclear Performance & Code Review Branch (SRSB) in the Division of Safety Systems and Risk Assessment (DSRA) will conduct an audit. The purpose of this audit is to review the AP1000 SBLOCA analysis to confirm the licensee's statement that a CMT volume of 2,487 ft<sup>3</sup> was used in the analysis.

The audit is based on the following regulations:

- Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix A, General Design Criterion 35, "Emergency Core Cooling"
- 10 CFR 50.46, "Acceptance Criteria for Emergency Core Cooling Systems for Light-Water Nuclear Power Reactors"

### REGULATORY AUDIT SCOPE

The objective of this audit is to verify that no additional information is needed related to the LARs by confirming that the existing AP1000 SBLOCA analyses assume a CMT volume of 2,487 ft<sup>3</sup>. The NRC staff will conduct this audit in accordance with the guidance provided in NRO-REG-108, "Regulatory Audits" (Reference 5).

### DOCUMENTS/INFORMATION NECESSARY FOR THE REGULATORY AUDIT

The following documents are to be made available to the NRC staff for review during the audit:

- Westinghouse calculation note APP-SSAR-GSC-130
- Any other relevant calculation notes

Appropriate handling and protection of proprietary information shall be acknowledged and observed throughout the audit.

### TEAM ASSIGNMENTS

- Alexandra Burja, NRC, NRO/DSRA/SRSB, Technical Reviewer
- Billy Gleaves, NRC, Lead Project Manager

### AUDIT ACTIVITIES

Consistent with the Office of New Reactor's procedure (Reference 5), this audit will be closed to public observation similar to the conduct of an inspection. Based on the identified scope, it is expected that the team will spend one day at the Westinghouse office listed above to conduct the audit.

Communication between SCE&G/SNC and the NRC staff will be through conference calls or designated personnel located onsite. After this audit review, any additional information that is necessary for the licensees to supplement its amendment for NRC staff to reach a regulatory decision will be requested from the licensee either in a request for additional information and/or will be requested to be made available during a future onsite audit.

## LOGISTICS

The audit will consist of NRC staff review of a calculation at Westinghouse's Rockville, Maryland office, with the date and time to be determined upon coordination with Westinghouse.

The NRC staff requests that the documentation remain available for access until the audit summary report is issued.

## DELIVERABLES

A summary report of the audit will be prepared and issued in accordance with NRO-REG-108 (Reference 1) within 45 days following the completion of the audit.

## REFERENCES

1. Letter from April R. Rice, South Carolina Electric & Gas Company (SCE&G) to NRC, "Request for License Amendment: Core Makeup Tank Volume Inconsistency (LAR 14-12)," dated May 12, 2016 (Agencywide Documents Access and Management System (ADAMS), Accession No. ML16133A382).
2. Letter from Brian H. Whitley, Southern Nuclear Operating Company (SNC) to NRC, "Request for License Amendment: Core Makeup Tank Volume Inconsistency (LAR 16-005)," dated May 18, 2016 (ADAMS Accession No. ML16139A796).
3. NRO-REG-108, "Regulatory Audits," April 2, 2009 (ADAMS Accession No. ML081910260).

**Audit Report**  
**Core Makeup Tank Volume Inconsistency (LAR 14-12 & LAR 16-005)**

**A. BACKGROUND**

By letter dated May 12, 2016 (Reference 1), South Carolina Electric & Gas Company (SCE&G), the licensee for Virgil C. Summer Nuclear Station (VCSNS) Units 2 and 3, requests U.S. Nuclear Regulatory Commission (NRC) approval of an amendment of the combined licenses (COL) for VCSNS Units 2 and 3, NPF COL Numbers NPF-93 and NPF-94, respectively. In addition, by letter dated May 18, 2016 (Reference 2), Southern Nuclear Operating Company (SNC), the licensee for Vogtle Electric Generating Plant (VEGP) Units 3 and 4, requests NRC staff approval of an identical amendment of the COL for VEGP Units 3 and 4, NPF COL Numbers NPF-91 and NPF-92, respectively. The proposed license amendment requests (LARs) 14-12 and 16-005 would revise the updated Final Safety Analysis Report text and tables and make changes to COL Appendix A, Technical Specifications, related to the minimum volume of the passive core cooling system core makeup tanks (CMTs). Specifically, the LARs request to change the CMT volume from 2,500 ft<sup>3</sup> in the aforementioned documents to 2,487 ft<sup>3</sup> to be consistent with the value in the inspections, tests, analyses, and acceptance criteria in plant-specific Design Control Document Tier 1. The LARs state that the AP1000 small break loss-of-coolant-accident (SBLOCA) safety analysis supports the revision, as it already assumes a CMT volume of 2,487 ft<sup>3</sup>.

To support its safety evaluation of LAR 14-12 and LAR 16-005, NRC staff from the Reactor Systems, Nuclear Performance & Code Review Branch (SRSB) in the Division of Safety Systems and Risk Assessment (DSRA) conducted an audit to review the AP1000 SBLOCA analysis to confirm the licensees' statement that a CMT volume of 2,487 ft<sup>3</sup> was used in the analysis.

**B. REGULATORY AUDIT BASES**

This regulatory audit is based on the following:

- Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix A, General Design Criterion 35, "Emergency Core Cooling"
- 10 CFR 50.46, "Acceptance Criteria for Emergency Core Cooling Systems for Light-water Nuclear Power Reactors"

**C. LOGISTICS**

The audit took place on Wednesday, June 22, 2016, at Westinghouse's Rockville, Maryland office listed below.

**LOCATION:** Westinghouse Office  
11333 Woodglen Drive, Suite 202  
Rockville, MD 20852

## AUDIT TEAM MEMBERS

The following NRC staff members participated in substantive discussions during the audit:

- Alexandra Burja, NRC Technical Reviewer
- Billy Gleaves, NRC Sr. Project Manager

## D. LICENSEE PARTICIPANTS

The following licensee or licensee-supporting personnel participated in the audit:

- Brian Barwick, SCE&G
- Dan Garrett, Westinghouse Electric Company
- Nicholas Kellenberger, SCANA Corporation
- David McDevitt, Westinghouse Electric Company
- Mike Patterson, Westinghouse Electric Company

## E. DOCUMENTS AUDITED

The NRC staff audited calculation note APP-SSAR-GSC-130, Rev. 2, "Small-Break LOCA Steady-State Model," dated September 4, 2014.

## F. AUDIT RESULTS AND CONCLUSIONS

The NRC staff confirmed during the audit that the CMT volume assumed in the AP1000 SBLOCA model is 2,487 ft<sup>3</sup>. The staff did not have any additional questions as a result of the audit.

## G. REFERENCES

1. Letter from April R. Rice, SCE&G to NRC, "Request for License Amendment: Core Makeup Tank Volume Inconsistency (LAR 14-12)," dated May 12, 2016 ((Agencywide Documents Access and Management System (ADAMS), Accession No. ML16133A382).
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