

June 8, 2010

MEMORANDUM TO: Gloria J. Kulesa, Chief  
Plant Licensing Branch II-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

FROM: Robert M. Taylor, Chief */RA/*  
Steam Generator Tube Integrity and  
Chemical Engineering Branch  
Division of Component Integrity  
Office of Nuclear Reactor Regulation

SUBJECT: VOGTLE ELECTRIC GENERATING PLANT – AUDIT OF STEAM  
GENERATOR H\* AMENDMENT REFERENCE DOCUMENTS  
(TAC NOS. ME3003 AND ME3004)

As a result of several interactions with representatives of Vogtle Electric Generating Plant, the Steam Generator Tube Integrity and Chemical Engineering Branch (CSGB) has decided that we need to perform an audit of the bases documents and calculations the Westinghouse Company has provided as a technical basis for the H\* amendment. The plan for our audit is enclosed. It was prepared in accordance with LIC-111, "Regulatory Audits." The audit is scheduled for June 14-15, 2010. If you have any comments or concerns, please let us know.

Docket Nos.: 50-424 and 50-425

Enclosure:  
As stated

CONTACT: Andrew B. Johnson, NRR/DCI  
301-415-1475

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**ADAMS Accession No.: ML101590334**

<b>OFFICE</b>	NRR/DCI/CSGB	NRR/DCI/CSGB
<b>NAME</b>	AJohnson	RTaylor
<b>DATE</b>	06/08/2010	06/08/2010

**OFFICIAL RECORD COPY**

VOGTLE ELECTRIC GENERATING PLANT  
AUDIT OF H\* ANALYSIS

**BACKGROUND**

By letter dated May 19, 2009 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML091470701), Southern Nuclear Operating Company, Inc (SNC), the licensee for Vogtle Electric Generating Plant (Vogtle), submitted a license amendment request that would permanently change the scope of the steam generator (SG) inspections required by the Vogtle Technical Specifications (TS). The technical basis for the amendment is an analysis (performed by the Westinghouse Company) that is referred to as H\* (H star). Due to an unresolved technical issue, regarding the finite element analysis modeling of eccentricity between the tube and the tubesheet, the U.S. Nuclear Regulatory Commission (NRC) was only able to approve a temporary amendment in the fall of 2009.

After the NRC informed Vogtle that only a temporary amendment would be approved, Vogtle requested that the NRC provide Requests for Additional Information (RAIs) regarding the eccentricity issue. The NRC provided the RAIs to Vogtle in fall 2009, and Vogtle asked Westinghouse to develop responses to the RAIs. In the spring of 2010, Westinghouse provided an opportunity for the NRC staff to review draft responses to the RAIs, in an effort to gauge whether the RAI responses contained sufficient detail. In order to more fully understand the draft responses, and to help determine the documents required to be submitted on the docket, the staff is planning to perform an audit of the Westinghouse H\* analyses, documents, and calculations, at the Waltz Mill, PA site.

**REGULATORY AUDIT BASES**

The Vogtle TS 5.5.9, "Steam Generator (SG) Program," requires SG tube inspections and assessments to be performed. In addition, TS 5.6.10, "Steam Generator Tube Inspection Report," and license condition 2.C(7) require the submission of a report summarizing the results of these inspections and assessments. The H\* amendment would limit the scope of the inspections required under the SG Program and therefore, the NRC staff needs to better understand the H\* analysis, in order to determine that SG tube integrity will be maintained and public health and safety will be ensured.

**REGULATORY AUDIT SCOPE OR METHODOLOGY**

The scope of the audit is based primarily on the following documents, which contain either technical bases documents that support the H\* amendment, or NRC staff RAIs about various portions of the H\* amendment and supporting analyses.

- Vogtle H\* License Amendment Request dated May 19, 2009 (ADAMS Accession No. ML091470701)
- Request for Additional Information Regarding H\* LAR dated July 10, 2009 (ADAMS Accession No. ML091880384)
- Letter of Unresolved Issues Regarding H\* LAR dated November 23, 2009 (ADAMS Accession No. ML093030490)

ENCLOSURE

### **INFORMATION/MATERIAL NECESSARY FOR THE AUDIT**

Copies of the reference WCAP H\* reports (WCAP-17071, -17072, -17091, -17092), RAI response letters (LTR-SGMP-09-100, -104, & -109), the draft RAI responses submitted to the Westinghouse Twinbrook office in April and May 2010, and LTR-SGMP-09-111, which performed an analysis on the variability of the depth from the top of the tubesheet to the bottom of the expansion transition (also called the crevice depth).

### **TEAM ASSIGNMENTS**

Emmett Murphy  
Ken Karwoski  
Andrew Johnson

### **LOGISTICS**

Location: Waltz Mill, PA

Date: June 14-15, 2010 (8:00 am – 5:00 pm, 8:00 am – 12:00 pm)

The NRC will provide the licensee a list of issues related to the draft RAI responses in advance of the scheduled audit. The audit will commence with the NRC staff providing a list of issues needing resolution, to which Westinghouse will provide calculation notes and supporting references that address the list of issues. NRC staff will then review the calculation notes and references to determine the level of documentation required to completely answer the RAIs, and those references and calculation notes required to be submitted on the docket. A brief exit meeting will be held at the end of the audit.

### **SPECIAL REQUESTS**

Cognizant staff and/or contractors should be available to discuss the H\* analysis with the NRC staff as needed.

### **DELIVERABLES**

Within 30 days of the regulatory audit, provide a letter to the licensee summarizing the scope and results of the audit.

### **REFERENCES**

1. Southern Nuclear Operating Company, Inc., Letter NL-09-0547, "Vogtle Electric Generating Plant License Amendment Request to Revise Technical Specification (TS) Sections 5.5.9, "Steam Generator (SG) Program" and TS 5.6.10, "Steam Generator Tube Inspection Report" for Permanent Alternate Repair Criteria," May 19, 2009, NRC ADAMS Accession No. ML091470701.
2. Westinghouse Electric Company report, WCAP-17071-P (Proprietary) and WCAP-17071-NP (Non- Proprietary), Rev. 0, "H\*: Alternate Repair Criteria for the Tubesheet Expansion Region in Steam Generators with Hydraulically Expanded Tubes

- (Model F),” April 2009; NRC ADAMS Accession Nos. ML091470699 (Introduction through Chapter 5 - Proprietary), ML091470700 (Chapter 6 to end - Proprietary), and ML091470698 (Non- Proprietary).
3. Westinghouse Electric Company report, WCAP-17072-P (Proprietary) and WCAP-17072-NP (Non-Proprietary), Rev. 0, “H\*: Alternate Repair Criteria for the Tubesheet Expansion Region in Steam Generators with Hydraulically Expanded Tubes (Model D5),” May 2009, NRC ADAMS Accession Nos. ML091670159 (Introduction through Section 6.2.2.2.2 - Proprietary), ML091670160 (Section 6.2.2.2.3 through Section 6.2.5.3 - Proprietary), ML091670161 (Section 6.2.6 through Appendix), and ML091670172 (Non- Proprietary).
  4. Southern Nuclear Operating Company, Inc. (SNC), letter NL-09-0547, “Vogtle Electric Generating Plant License Amendment Request to Revise Technical Specification (TS) sections 5.5.9, "Steam Generator (SG) Program" and TS 5.6.10, "Steam Generator Tube Inspection Report" for Permanent Alternate Repair Criteria,” May 19, 2009, NRC ADAMS Accession No. ML091470701. This letter also transmitted Reference 16.
  5. SNC letter NL-09-1375, August 28, 2009, responding to VEGP RAI No. 4 and transmitting WEC letter SGMP-09-109-P Attachment “Response to NRC Request for Additional Information on H\*; RAI #4; Model F and Model D5 Steam Generators,” dated August 25, 2009, NRC ADAMS Accession No. ML092450333.
  6. SNC letter NL-09-1265, August 28, 2009, responding to VEGP RAIs and transmitting WEC letter LTR-SGMP-09-100-P (Proprietary) and LTR-SGMP-09-100-NP (Non-Proprietary) “Response to NRC Request for Additional Information on H\*; Model F and D5 Steam Generators,” dated August 12, 2009, NRC ADAMS Accession Nos. ML092450102 (Proprietary) and ML092450101 (Non-Proprietary).
  7. Westinghouse Electric Company letter, LTR-SGMP-09-100-P (Proprietary) and LTR-SGMP-09-100-NP (Non-Proprietary) “Response to NRC Request for Additional Information on H\*; Model F and D5 Steam Generators,” August 12, 2009, NRC ADAMS Accession Nos. ML092370305 (Proprietary) and ML092370304 (Non-Proprietary).
  8. SNC letter NL-09-1317, August 28, 2009, transmitting WEC letter LTR-SGMP-09-104-P Attachment “White Paper on Probabilistic Assessment of H\*” dated August 13, 2009, NRC ADAMS Accession Nos. ML092450030 (Proprietary) and ML092450029 (Non-Proprietary).