

July 8, 2015

MEMORANDUM TO: Paul Kallan, Acting Chief
Licensing Branch 4
Division of New Reactor Licensing
Office of New Reactors

FROM: Chandu Patel, Senior Project Manager */RA/*
Licensing Branch 4
Division of New Reactor Licensing
Office of New Reactors

SUBJECT: REGULATORY AUDIT PLAN FOR THE REVIEW OF
CALCULATIONS METHODOLOGY SUPPORTING USE OF
AWS D1.1-2000 CRITERIA FOR STRUCTURAL WELDS FOR
VOGTLE ELECTRICAL GENERATING PLANT, UNITS 3 AND 4,
AND V. C. SUMMER UNITS 2 AND 3 (TAC NO. RP9413)

By letter dated June 29, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession Number ML15181A078 and ML15181A079), Southern Nuclear Operating Company, Inc. and South Carolina Electric and Gas Company (the licensees) requested an amendment to Combined License Numbers NPF-91 and NPF-92, for Vogtle Electrical Generating Plant Units 3 and 4 and NPF- 93 and NPF-94 for Virgil C. Summer Units 2 and 3. The proposed amendment would allow the use of AWS D1.1 -2000 criteria for structural welds.

The Nuclear Regulatory Commission (NRC) staff plans to conduct a regulatory audit to review and verify that the results of the finite element benchmark analysis and additional calculation notes confirmed that linear out-of plane behavior is similar to circular weld out-of-plane behavior. The audit plan is enclosed.

Docket Nos. 52-025 and 52-026
52-027 and 52-028

Enclosure:
Regulatory Audit Plan

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52-027 and 52-028

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Regulatory Audit Plan

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ADAMS ACCESSION NO: ML15188A426

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DATE	07/08/2015	07/07/2015	07/08/2015	07/08/2015

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REGULATORY AUDIT PLAN FOR THE REVIEW OF CALCULATIONS METHODOLOGY
SUPPORTING USE OF AMERICAN WELDING SOCIETY D1.1 -2000
CRITERIA FOR STRUCTURAL WELDS
VOGTLE ELECTRIC GENERATING PLANT UNITS 3 AND 4
VIRGIL C. SUMMER UNITS 2 AND 3
DOCKET NOS. 52-025, 52-026, 52-027, AND 52-028

BACKGROUND

By letter dated June 29 2015, (Agencywide Documents Access and Management System (ADAMS) Accession Number ML115181A078 and ML15181A079), Southern Nuclear Company, Inc. (SNC) and South Carolina Electric and Gas Company (SCE&G), submitted License Amendment Request (LAR) for Vogtle Electric Generating Plant (VEGP) Units 3 and 4 and Virgil C. Summer Nuclear Station Units 2 and 3. The proposed amendment would allow the use of AWS D1.1 -2000 for structural welds. These units are Westinghouse AP1000 reactors. VEGP and VCSNS Updated Final safety Analysis Report (UFSAR) Sections 3.7 and 3.8 incorporate by reference AP1000 Design Control Document (DCD) (Revision 19) Sections 3.7 and 3.8 and address applicable combined licenses action items and site specific features.

In the License Amendment Requests (LARs) the licensees mentioned a finite element analysis (FEA) for out-of-plane loading on the fillet weld was performed to compare the differences between linear welds and concentrically loaded circular group. The FEA is used for benchmark to cruciform-shaped tests from Gomez et al. report, to confirm behavior of the circular weld group.

The purpose of this audit is to verify that the results of the FEA benchmark analysis and additional calculation notes confirmed that linear out-of plane behavior is similar to circular weld out-of-plane behavior.

REGULATORY AUDIT BASES

For Vogtle and Summer, UFSAR Section 3.8, the acceptance criteria associated with the relevant requirements of the Commission regulations (General Design Criterion (GDC) 1, GDC 2, and GDC 4,, of Appendix A to 10 CFR Part 50; 10 CFR 50.55(a) and Appendix B, to 10 CFR Part 50) are given in Section 3.8.3 and 3.8.4 of NUREG-0800.

REGULATORY AUDIT SCOPE OR METHODOLOGY

Details regarding the FEA analysis and the weld design of coupler will be reviewed by the staff and will be used to support the safety findings of the LARs. Calculations supporting the licensee's analysis will be reviewed. In particular, the staff plans to review calculations supporting the applicant's approach for the benchmark confirm behavior of the circular weld group.

Enclosure

TEAM ASSIGNMENTS

Chandu Patel, NRC, Project Manager
Jim Xu, NRC, Branch Chief, Structural Engineering Branch (SEB)
Pravin Patel, NRC, Structural Design
Ata Istar, NRC, Structural Design

LOGISTICS

The audit will be conducted at Westinghouse offices in Rockville, MD, beginning on July 8, 2015. An escort is requested to meet the audit team in the lobby of the building at 8:00 a.m. on the day of the meeting.

All material subject to the site visit (hard copy or electronic) will be left at the site. If any documentation is required to support the staff's regulatory findings, the staff will identify it in a request for additional information.

SPECIAL REQUESTS

Please reserve a workspace for the team members to meet privately and discuss the progress of the audit. Audit team members will bring computers for note taking and preparation of a report on the audit. Access to relevant calculation reports and supporting documents (e.g., AP1000 DCD, UFSAR) would make the audit more effective and efficient. In addition to workspace with power for the team's computers, please provide access to a local or network printer and an Ethernet connection to the Internet by which the team can remotely access computer resources at the NRC. (Additional computer monitors would also be helpful.) Finally, please arrange a teleconference line to permit the project manager, SEB branch chief, and others at NRC headquarters to participate as needed.

DELIVERABLES

A summary report of the audit will be prepared and issued in accordance with NRO-REG-108.

REFERENCES

1. NRO-REG-108, "Regulatory Audits," April 2, 2009
2. NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants."

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(Revised 06/16/2015)

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(Revised 06/16/2015)

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