



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

April 24, 2018

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

FROM: Jordan Hoellman, Project Manager */RA/*  
Licensing Branch 4  
Division of New Reactor Licensing  
Office of New Reactors

SUBJECT: AUDIT SUMMARY FOR VOGTLE ELECTRIC GENERATING  
PLANT UNITS 3 AND 4, REQUEST FOR LICENSE  
AMENDMENT AND EXEMPTION REGARDING CHANGES TO  
THE BUILDING GAP BETWEEN THE NUCLEAR ISLAND AND  
ADJACENT BUILDINGS (LAR-18-002)

The U.S. Nuclear Regulatory Commission staff conducted an audit of documents related to the Vogtle Electric Generating Plant (VEGP) Units 3 and 4, combined licenses, specifically documents related to VEGP License Amendment Request (LAR) 18-002 (Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML18032A359). The audit was conducted at the Westinghouse Electric Company offices located in Rockville, Maryland on April 5, 2018.

The plan for this audit is available in ADAMS under Accession No. ML17333A108. A summary of the audit is enclosed.

Docket Nos.: 52-025 and 52-026

Enclosure:  
As stated

CONTACT: Jordan Hoellman, NRO/DNRL/LB4  
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SUBJECT: AUDIT SUMMARY FOR VOGTLE ELECTRIC GENERATING PLANT UNITS 3 AND 4, REQUEST FOR LICENSE AMENDMENT AND EXEMPTION REGARDING CHANGES TO THE BUILDING GAP BETWEEN THE NUCLEAR ISLAND AND ADJACENT BUILDINGS (LAR-18-002) DATED APRIL 24, 2018

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**ADAMS ACCESSION: ML18113A105**

**\*via email**

**NRO-008**

<b>OFFICE</b>	DNRL/LB4:PM	DNRL/LB4:LA	DNRL/LB4:PM	DNRL/LB4:BC
<b>NAME</b>	JHoellman	RButler	CPatel	JDixon-Herrity
<b>DATE</b>	4/24/18	4/24/18	4/24/18	4/24/18

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**U.S. Nuclear Regulatory Commission  
Audit Summary for  
Vogtle Electric Generating Plant Units 3 and 4  
Request for License Amendment and Exemption Regarding  
Changes to the Building Gap between the Nuclear Island and  
Adjacent Buildings (LAR-18-002)**

**April 2018**

**Purpose**

The Regulatory Audit was conducted to examine and evaluate technical information in order to confirm that the differential settlement at the Vogtle Electric Generating Plant (VEGP) Units 3 and 4 does not have adverse impact on the gaps between the nuclear island and adjacent buildings, as concluded in License Amendment Request (LAR) 18-002, "Changes to the Building Gap between the Nuclear Island and Adjacent Buildings," VEGP Units 3 and 4 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML18032A359). The staff's review of the VEGP Units 3 and 4 documentation during this audit supports the staff's review of LAR 18-002. The purpose for the audit is documented in the audit plan (ADAMS Accession No. ML18089A282).

**Background**

On February 1, 2018, Southern Nuclear Operating Company (SNC) submitted VEGP Units 3 and 4 LAR-18-002 to the U.S. Nuclear Regulatory Commission (NRC). The requested amendment includes changes to revise the Updated Final Safety Analysis Report in the form of departures from the incorporated plant-specific Design Control Document (DCD) Tier 2\* and Tier 2 information and involves related changes to plant-specific Tier 1 information, with corresponding changes to the associated combined license Appendix C information. Specifically, the requested amendment proposes changes to relax the minimum gap requirement above grade between the nuclear island and the annex building/turbine building and to remove the minimum gap requirement for the radwaste building from the Inspections, Tests, Analyses and Acceptance Criteria.

VEGP Units 3 and 4 LAR-18-002 on pages 9 and 10 of Enclosure 1 states that differential settlement of foundations may impact the gaps between the nuclear island and adjacent buildings and that differential settlement of foundations is evaluated based on the VEGP Units 3 and 4 settlement survey data collected from the site specific settlement monitoring program for potential impact on the gap between the nuclear island and adjacent buildings. SNC's conclusion that the differential settlement does not have adverse impact on the gaps between the nuclear island and adjacent buildings is based on the settlement survey data.

The staff performed an audit to confirm that the differential settlement does not have adverse impact on the gaps between the nuclear island and adjacent buildings by reviewing settlement survey data demonstrating that the nuclear island and the turbine building foundations have deflected more in the center, and the annex building foundation has deflected uniformly after all construction stages.

Enclosure

## **Regulatory 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 1, "Quality standards and records," as it relates to the requirement that structures, systems, and components (SSCs) important to safety be designed, fabricated, erected, and tested to quality standards commensurate with the importance of the safety functions to be performed. It also requires that appropriate records of the design, fabrication, erection, and testing of SSCs important to safety be maintained by or under the control of the nuclear power unit licensee throughout the life of the unit.

10 CFR Part 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Processing Plants," as it relates to quality assurance requirements for the design, fabrication, construction, and testing of those SSCs of nuclear power plants that prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public.

## **Audit Location and Date**

This audit took place on April 5, 2018. The audit was conducted at the Westinghouse Electric Company offices located in Rockville, Maryland.

## **Audit Team Assignments**

- Zuhan Xi, Audit Lead, Geotechnical Engineer, Geoscience and Geotechnical Engineering Branch, Office of New Reactors (NRO)
- Jordan Hoellman, Project Manager, Licensing Projects Branch 4, NRO

## **Documents Audited**

- SV0-0500-XCR-800030 R0, VEGP Units 3 and 4 Settlement Survey Data
- APP-1000-GEF-231 R0, Adjacent Buildings Displacements

## **Audit Activities/Summary**

During the audit, the NRC staff reviewed the above documents.

The staff examined the survey data and associated plots for past few years from beginning of construction stage to current stage. The staff discussed with SNC's engineer about the survey data and associated plots, as well as the comparison between measured actual settlements and calculated settlements by analytical mode. The staff verified that the patterns of differential settlements for the foundations of the nuclear island, turbine building, and annex building, are in agreement with the description in Enclosure 1 of VEGP Units 3 and 4 LAR-18-002. The staff noted the surveyed foundations settlement are much less than calculated settlements by analytical model. The staff also noted that all settlements and differential settlements are well under the limits of AP1000 DCD.

The NRC staff reviewed the documents listed in this audit report and confirmed that the differential settlement does not have adverse impact on the gaps between the nuclear island and adjacent buildings and that the settlement survey data supports LAR 18-002. The staff finds the licensee's differential settlement conclusions to be reasonable to support LAR 18-002 for VEGP Units 3 and 4.

**Exit Briefing**

The staff informed SNC that the audit confirmed the differential settlement conclusions to be reasonable to support LAR 18-002 for VEGP Units 3 and 4.

**Request for Additional Information**

None

**Open Items and Proposed Closure Path**

None

**Deviations from the Audit Plan**

None