



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

February 28, 2018

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

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

SUBJECT: AUDIT PLAN FOR VOGTLE ELECTRIC GENERATING PLANT  
UNITS 3 AND 4, REQUEST FOR LICENSE AMENDMENT AND  
EXEMPTION: IMPROVEMENTS TO MAIN CONTROL ROOM  
(MCR) POST-ACCIDENT RADIOLOGICAL CONSEQUENCES  
(LAR 17-023)

By letter dated August 31, 2017, and supplemented by letter dated February 9, 2018, (Agencywide Documents Access and Management System (ADAMS) Accession Numbers ML17243A352 and ML18040A487), Southern Nuclear Operating Company (the licensee) requested an amendment to Combined License Numbers NPF-91 and NPF-92, for Vogtle Electric Generating Plant (VEGP) Units 3 and 4.

The requested amendment proposes to depart from Tier 2 information in the Updated Final Safety Analysis Report (UFSAR) (which includes the plant-specific design control document (DCD) Tier 2 information) and involves related changes to plant-specific Tier 1 (and associated Combined License (COL) Appendix C) information, and COL Appendix A, Technical Specifications.

The requested amendment proposes changes to the plant-specific nuclear island non-radioactive ventilation system (VBS), the main control room emergency habitability system (VES), and post-accident operator dose analyses. These changes are proposed to maintain compliance with General Design Criterion (19), which requires that main control room (MCR) personnel dose does not exceed 5 rem total effective dose equivalent (TEDE) for the duration of a design basis accident (DBA).

CONTACT: Paul Kallan, NRO/DNRL/LB4  
301-415-2809

The Radiation Protection and Accident Consequences Branch staff plans to conduct an audit to gain better understanding of proposed changes to reach reasonable findings and review related documentation and non-docketed information to evaluate conformance with the Standard Review Plan or technical guidance.

Docket Nos.: 52-025 and 52-026

Enclosure:  
Regulatory Audit Plan

cc: See next page

U.S. NUCLEAR REGULATORY COMMISSION AUDIT PLAN FOR VOGTLE ELECTRIC  
GENERATING PLANT UNITS 3 AND 4 REQUEST FOR LICENSE AMENDMENT AND  
EXEMPTION: IMPROVEMENTS TO MAIN CONTROL ROOM (MCR) POST-ACCIDENT  
RADIOLOGICAL CONSEQUENCES (LAR 17-023) DATED: FEBRUARY 28, 2018

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**ADAMS Accession No.: ML18058A090**

**NRO-008**

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DATE	2/28/18	2/27/18	2/28/18

**OFFICIAL RECORD COPY**

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(Revised 01/09/2018)

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**AUDIT OF REPORTS AND CALCULATIONS IN SUPPORT OF REQUEST FOR LICENSE  
AMENDMENT AND EXEMPTION RELATED TO IMPROVEMENTS TO MAIN CONTROL ROOM  
(MCR) POST-ACCIDENT RADIOLOGICAL CONSEQUENCES**

**SOUTHERN NUCLEAR OPERATING COMPANY  
VOGTLE ELECTRIC GENERATING PLANT, UNITS 3 AND 4  
Docket Nos. 52-025 and 52-026**

Location: NRC Headquarters  
Two White Flint North  
11545 Rockville Pike  
Rockville, Maryland 20852-2738

The purpose of the audit is to review the reports and calculations needed by staff to verify the information and conclusions in the "Request for License Amendment and Exemption: Improvements to Main Control Room (MCR) Post-Accident Radiological Consequences (LAR 17-023)" submitted by Southern Nuclear Operating Company (SNC) for the Vogtle Electric Generating Plant (Vogtle), Units 3 and 4, in license amendment request (LAR) 17-023 (Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML17243A352 and ML18040A487).

**A. Background:**

In LAR-17-023, SNC proposes to depart from Tier 2 information in the Updated Final Safety Analysis Report (UFSAR) (which includes the plant-specific DCD Tier 2 information) and involves related changes to plant-specific Tier 1 (and associated COL Appendix C) information, and COL Appendix A, Technical Specifications.

The requested amendment proposes changes to the plant-specific nuclear island non-radioactive ventilation system (VBS), the main control room emergency habitability system (VES), and post-accident operator dose analyses. These changes are proposed to maintain compliance with General Design Criterion (19), which requires that main control room (MCR) personnel dose does not exceed 5 rem total effective dose equivalent for the duration of a design basis accident.

The Office of New Reactors (NRO) Projects staff determined that an audit of the reports and calculations supporting this LAR is the appropriate method to verify this proposed change rather than by issuing multiple rounds of requests for additional information (RAIs).

**B. Regulatory Audit Basis**

10 CFR 50.34(f)(2)(vii) requires the performance of radiation and shielding design reviews of spaces around systems that may, as a result of an accident, contain accident source term radioactive materials, and design as necessary to permit adequate access to important areas and to protect safety equipment from the radiation environment.

The NRC staff will follow NRO Office Instruction NRO-REG-108 (Revision 0), "Regulatory Audits," (ADAMS Accession No. ML081910260) in performing the audit of the reports and calculations cited below.

### **C. Regulatory Audit Scope**

In LAR-17-023, the applicant revised the location of the MCR auxillary fans. The fans were previously housed in the MCR, however, as part of the LAR, the fans were relocated to room 12412. Room 12412 contains containment penetrations and is potentially a significant radiological area following an accident (UFSAR Figure 12.3-2, Sheet 7, "Radiation Zones, Post-Accident Nuclear Island, Elevation 117'-6" identifies the area as having dose rates between 10 rem/hour and 100 rem/hour). During accident conditions, the fans are required to be accessed and removed from room 12412 to establish cooling in postulated accident conditions. Specifically, the action involves accessing room 12412 to access the fans, removal of the first fan cart from its seismic attachments, travel to the MCR for placement of the first fan, return to room 12412 to access the second fan, removal of the second fan from its seismic attachments, and return to the MCR with the second fan. In LAR-17-023, Supplement 1, the licensee included Table 3-2, which provides the inputs and assumptions used to perform the action of removing the fans. This table indicates that the dose rate inside room 12412 to personnel accessing and working on the fans is several orders of magnitude less than the dose rate for room 12412 shown in UFSAR Figure 12.3-2, Sheet 7.

In order to reach a finding of reasonable assurance that the licensee has adequately addressed 10 CFR 50.34(f)(2)(vii) and has provided a reasonable estimate of the dose to an individual performing this vital mission, the staff is auditing the licensees dose calculations for performing this vital mission. The staff will primarily focus its review on the dose that the individual will receive while inside room 12412.

### **D. Information and Other Material Necessary for the Regulatory Audit**

The following documents are to be made available to the NRC staff either at a local office or in the electronic reading room:

- The safety analysis calculation document supporting the proposed test condition change.

Other documents may be requested based on the staff's review of the above documents.

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

### **E. Audit Team**

The following are the NRC audit team members:

Paul Kallan, Senior Project Manager (NRC), Lead  
Ron LaVera, Health Physicist (NRC), Technical Reviewer  
Ed Stutzcage, Health Physicist (NRC), Technical Reviewer  
Michelle Hart, Senior Reactor Engineer (NRC), Technical Reviewer

The following are the licensee contacts:

Neil Haggerty (SNC)  
Amy Chamberlain (SNC)



## **F. Logistics**

The NRC staff will address in the audit report the technical areas identified in the Regulatory Audit Scope of this audit plan along with presenting the audit outcomes.

The audit will be conducted in support of the schedule for completion of the LAR-17-023 review with entrance and exit dates to be determined. The level of effort is estimated to be a total of 80 hours to perform the audit and issue the audit report.

Depending on the availability of the licensee's documentation, the audit is planned to be conducted in March 2018. The audit is intended to be conducted from the NRC Headquarters via the licensee's electronic reading room; however, the audit may be performed at a local office of the licensee, if the technical information is only retained in hard copy.

The NRC staff acknowledges the proprietary nature of the information requested. It will be handled appropriately throughout the audit. While the NRC staff will take notes that will be marked as proprietary and will not remove hard copies or copy electronic files.

## **G. Special Requests**

If necessary, any circumstances related to the performance of the audit will be communicated to Paul Kallan (NRC) at 301-415-2809 or Paul.Kallan@nrc.gov.

## **H. Deliverables**

At the completion of the audit, the NRC staff will prepare an audit report within 45 days that will be declared and entered as an official agency record in ADAMS. The audit outcome may be used to identify any additional information to be submitted for making regulatory decisions, and will assist the NRC staff in the issuance of RAIs (if necessary) in completing its review of LAR-17-023. With the anticipated exit telecom in March 2018, the audit report will be completed by April 2018.