



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

April 19, 2011

Barry S. Allen  
Vice President, Davis-Besse Nuclear Power Station  
FirstEnergy Nuclear Operating Company  
5501 North State Route 2  
Oak Harbor, OH 43449

SUBJECT: SCOPING AND SCREENING AUDIT REPORT REGARDING THE  
DAVIS-BESSE NUCLEAR POWER STATION LICENSE RENEWAL  
APPLICATION (TAC NO. ME4640)

Dear Mr. Allen:

By letter dated August 27, 2010, FirstEnergy Nuclear Operating Company, submitted an application pursuant to 10 *Code of Federal Regulation* Part 54 for renewal of Operating License NPF-3 for the Davis-Besse Nuclear Power Station. On January 28, 2011, the staff of the U.S. Nuclear Regulatory Commission completed the on-site audit of aging management programs. The audit report is enclosed.

If you have any questions, please contact me by telephone at 301-415-2277 or by e-mail at [brian.harris2@nrc.gov](mailto:brian.harris2@nrc.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "B. Harris", written over a horizontal line.

Brian K. Harris, Project Manager  
Projects Branch 1  
Division of License Renewal  
Office of Nuclear Reactor Regulation

Docket No. 50-346

Enclosure:  
As stated

cc w/encl: Listserv

U.S. NUCLEAR REGULATORY COMMISSION

OFFICE OF NUCLEAR REACTOR REGULATION, DIVISION OF LICENSE RENEWAL

Docket No: 050-00346

License No: NPF-3

Licensee: FirstEnergy Nuclear Operating Company

Facility: Davis-Besse Nuclear Power Station

Location: 5501 North State Route 2  
Oak Harbor, OH 43449

Dates: January 24 - 28, 2011

Reviewers: B. Rogers, Reactor Engineer, Division of License Renewal (DLR)  
S. Sakai, Mechanical Engineer, DLR  
A. Buford, Structural Engineer, DLR  
M. Homiack, Mechanical Engineer, DLR  
D. Brittner, Mechanical Engineer, DLR  
E. Smith, Reactor Engineer, Division of Safety Systems (DSS)  
E. Davidson, Reactor Engineer, DSS  
L. Howard, Consultant, Southwest Research Institute (SWRI)  
R. Brient, Consultant, SWRI  
J. Nickolaus, Consultant, Pacific Northwest National Laboratory

ENCLOSURE

# SCOPING AND SCREENING AUDIT REPORT REGARDING THE DAVIS-BESSE NUCLEAR POWER STATION LICENSE RENEWAL APPLICATION

## I. Introduction

During the week of January 24 - 28, 2011, the Division of License Renewal, Aging Management of Structures, Electrical and Systems Branch, performed an audit of the FirstEnergy Nuclear Operating Company (FENOC or the applicant) license renewal scoping and screening methodology developed to support the license renewal application (LRA) for Davis-Besse Nuclear Power Station, Unit 1 (Davis-Besse). The audit was performed at the applicant's facility located on the southwestern shore of Lake Erie in Ottawa County in northwestern Ohio. The focus of the staff's audit was the applicant's administrative controls governing implementation of the LRA scoping and screening methodology and review of the technical basis for selected scoping and screening results for various plant systems, structures, and components (SSCs). The audit team also reviewed quality attributes for aging management programs (AMPs), quality practices used by the applicant to develop the LRA, and training of personnel that developed the LRA.

The regulatory bases for the audit were Title 10 of the *Code of Federal Regulations*, Part 54, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants," (10 CFR Part 54) and NUREG-1800, "Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants," Revision 2 (SRP-LR). In addition, the applicant developed the LRA in accordance with Nuclear Energy Institute (NEI) 95-10, "Industry Guidelines for Implementing the Requirements of 10 CFR 54 – The License Renewal Rule," Revision 6 (NEI 95-10) which the NRC has endorsed via Regulatory Guide 1.188, "Standard Format and Content for Applications to Renew Nuclear Power Plant Operating Licenses," (Regulatory Guide 1.188).

## II. Background

10 CFR 54.21, "Contents of Application – Technical Information," requires that each application for license renewal contain an integrated plant assessment (IPA). Furthermore, the IPA must list and identify those structures and components (SCs) subject to an aging management review (AMR) from the SSCs that are included within the scope of license renewal. 10 CFR 54.4(a) identifies the plant SSCs within the scope of license renewal. SCs within the scope of license renewal are evaluated to determine if they are long-lived and passive equipment and, therefore, subject to an AMR in accordance with 10 CFR 54.21(a)(1).

## III. Scoping Methodology

The scoping evaluations for the Davis-Besse LRA were performed by the applicant's license renewal project personnel. The audit team conducted detailed discussions with the applicant's license renewal project personnel and reviewed documentation pertinent to the scoping process. The audit team assessed whether the scoping methodology outlined in the LRA and implementation procedures were appropriately implemented and whether the scoping results were consistent with current licensing basis requirements.

The audit team conducted a review of a sample of 85 components from the applicant's configuration database to verify that the selected components were correctly identified as being within the scope of license renewal. The audit team reviewed the selected components, which

included mechanical, electrical and structural components, using the applicant's documents including the Updated Safety Analysis Report (USAR), system information and piping and instrumentation drawings to perform its review.

The audit team also reviewed a sample of system scoping results for the following systems and structures: service water, emergency diesel generators and support systems, main feedwater, auxiliary feedwater, and the turbine building. The audit team determined that the applicant's scoping methodology was generally consistent with the requirements of the Rule for the identification of SSCs that meet the scoping criteria of 10 CFR 54.4(a). However, the audit team determined that additional information was required in order for the staff to complete its review:

- The applicant identified nonsafety-related structures, systems, and components (SSCs) in the vicinity of the safety-related components located in the turbine building. The applicant had concluded that the nonsafety-related SSCs were not required to be included within the scope of license renewal in accordance with 10 CFR 54.4(a)(2). The staff requested that the applicant provide a description and the results of the evaluation that formed the basis for the conclusion that the nonsafety-related SSCs do not meet the criteria for inclusion within the scope of license renewal in accordance with 10 CFR 54.4(a)(2) for spatial interaction.
- The staff determined that the applicant did not include nonsafety-related relief valve drain lines, within the vicinity of safety-related SSCs, within the scope of license renewal. The staff requested that the applicant provide a description and the results of the evaluation that formed the basis for the conclusion that the nonsafety-related SSCs do not meet the criteria for inclusion within the scope of license renewal in accordance with 10 CFR 54.4(a)(2) for spatial interaction.
- The staff determined that the applicant did not include nonsafety-related drip pans and retention area drain lines, within the vicinity of safety-related SSCs, within the scope of license renewal. The staff requested that the applicant provide a description and the results of the evaluation that formed the basis for the conclusion that the nonsafety-related SSCs do not meet the criteria for inclusion within the scope of license renewal in accordance with 10 CFR 54.4(a)(2) for spatial interaction.
- During a plant walkdown, the staff observed a nonsafety-related domestic water valve and other nonsafety-related fluid filled SSCs located in the service water tunnel and in the vicinity of safety-related SSCs. The staff requested that the applicant provide a description and the results of the evaluation that formed the basis for the conclusion that the nonsafety-related SSCs do not meet the criteria for inclusion within the scope of license renewal in accordance with 10 CFR 54.4(a)(2) for spatial interaction.
- The staff determined through a review of license renewal drawings and discussion with the applicant that for certain systems nonsafety-related pipe attached to safety-related pipe had not been included within the scope of license renewal. The staff requested that the applicant provide details of the analysis performed and any conclusions related to nonsafety-related pipe, attached to safety-related pipe, for inclusion within the scope

of license renewal up to and including a seismic anchor or equivalent, in accordance with 10 CFR 54.4(a)(2).

- The staff determined through a review of license renewal drawings and discussion with the applicant that equipment that was no longer required had been placed in an abandoned state. The staff requested that the applicant provide details on the activities performed to confirm that all abandoned equipment that at any time contained fluids, and is in the proximity of safety-related SSCs, has been verified to be drained. If abandoned equipment had not been verified to be drained or is not included within the scope of license renewal, provide details of the analysis performed and any conclusions, related to the inclusion of abandoned equipment within the scope of license renewal in accordance with 10 CFR 54.4(a)(2).
- During a plant walkdown, the staff observed the nonsafety-related condensate line located in the turbine building that exited through the deck to the space below that contained the auxiliary feedwater pumps. The applicant indicated that the condensate line nonsafety-related to safety-related interface was located at a point below the turbine building deck. The staff requested that the applicant identify the specific location of the nonsafety to safety-related interface and all mitigative features installed to protect the integrity of the nonsafety to safety-related interface. The staff requested that the applicant provide the evaluation of all components and structures relied upon to protect the safety/nonsafety interface for inclusion within the scope of license renewal in accordance with 10 CFR 54.4(a)(2).
- The staff determined through a review of the service water aging management review documentation that the service water pump bolts were excluded from the scope of license renewal based on periodic replacement. However, the aging management review documentation indicated that a visual inspection was also used to determine whether bolt replacement would be required. The staff determined that the use of inspection activities to determine the need to replace a component did not meet the requirements of 10 CFR 54.21(a)(1)(ii) – replacement based on a qualified life or specified time period. The staff requested that the applicant provide details of the analysis performed and any conclusions, related to the review of service water pump bolts, for inclusion within the scope of license renewal in accordance with 10 CFR 54.4(a)(2).

#### **IV. Screening Methodology**

The audit team reviewed the methodology used by the applicant to determine if mechanical, structural, and electrical components within the scope of license renewal would be subject to an AMR (screening). The applicant provided the audit team with a detailed discussion of the processes used for each discipline and provided administrative documentation that described the screening methodology. The audit team also reviewed the screening results reports for the service water, emergency diesel generators and support systems, main feedwater, auxiliary feedwater, and the turbine building. The audit team noted that the applicant's screening process was performed in accordance with its written requirements and was consistent with the guidance provided in the SRP-LR and NEI 95-10. The audit team determined that the

screening methodology was consistent with the requirements of the Rule for the identification of SSCs that meet the screening criteria of 10 CFR 54.21(a)(1).

#### **V. Aging Management Program Quality Assurance Attributes**

The audit team reviewed the applicant's AMPs described in Appendix A, "Updated Safety Analysis Report Supplement," and Appendix B, "Aging Management Programs," of the Davis-Besse LRA for inclusion of the appropriate quality assurance (QA) requirements for elements No. 7 (corrective action), No. 8 (confirmation process), and No. 9 (administrative controls). In addition, the audit team reviewed AMP basis documents to ensure consistency in the use of the QA attributes for each program. The purpose of this review was to ensure that the aging management activities were consistent with the staff's guidance described in SRP-LR, Section A.2, "Quality Assurance for Aging Management Programs (Branch Technical Position IQMB-1)."

Based on the audit team's evaluation, the descriptions and applicability of the AMPs and their associated quality attributes, provided in Appendix A, Section A.1, "Summary Descriptions of Aging Management Programs and Activities," and Appendix B, Section B.1.3, "Quality Assurance Program and Administrative Controls," of the LRA, were determined to be generally consistent with the staff's position regarding QA for aging management.

#### **VI. Quality Assurance Controls Applied to LRA Development**

The staff reviewed the quality controls used by the applicant to ensure that scoping and screening methodologies used to develop the LRA were adequately implemented. The applicant used the following quality control processes during the LRA development:

- The applicant developed written procedures to direct implementation of the scoping and screening methodology, to control LRA development, and to describe training requirements and documentation.
- The applicant's reviews of the LRA included management and technical reviews, industry peer review and sufficiency check, and licensing reviews by Fleet Licensing, Corporate Legal, the Plant Operations Review Committee, and the Corporate Nuclear Review Board for License Amendment Requests.
- The LRA submittal review and approval was performed by the License Renewal Project Manager, Davis-Besse Senior Leadership Team, and Fleet Licensing Manager.
- The comments received throughout the review process were addressed. The audit team reviewed a sample of comment resolution documentation and determined that the applicant's comment resolution process is consistent and adequate.
- The applicant used its open item tracking system to capture any identified issues for resolution.

The audit team performed a sample review of reports and LRA development procedures, the applicant's documentation of the activities performed to assess the quality of the LRA, and held discussions with the applicant's license renewal personnel. The audit team determined that the applicant's activities provide assurance that LRA development activities were performed consistently with the applicant's license renewal program requirements.

## **VII. Training for License Renewal Project Personnel**

The audit team reviewed the applicant's training process to ensure the guidelines and methodology for the scoping and screening activities were applied in a consistent and appropriate manner. The applicant required training for personnel participating in the development of the LRA and used only trained and qualified personnel to prepare the scoping and screening implementing procedures and reports.

- Training was required for the license renewal project personnel, which followed documented procedures.
- Initial orientation training/overview was provided to license renewal personnel for familiarization with U.S. Nuclear Regulatory Commission (NRC) regulations and industry guidance.
- The training for project personnel included required reading and general review.
- Orientation was also provided to FENOC personnel other than the license renewal team, such as subject matter experts and aging management program owners.
- Applicant personnel and their license renewal contractor had previous license renewal experience and participated in license renewal industry working groups.

On the basis of discussions with the applicant's license renewal personnel responsible for the scoping and screening process, and a review of selected documentation in support of the process, the NRC audit team determined that the applicant's personnel understood the requirements and adequately implemented the scoping and screening methodology established in the applicant's renewal application.

## **VIII. Final Briefing**

A final briefing was held with the applicant on January 28, 2011, to discuss the results of the scoping and screening methodology audit. The audit team identified preliminary areas where additional information would be required to support completion of the staff's LRA review.

## **IX. Documents Reviewed**

1. NUREG-1800, "Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants," Revision 2
2. NEI 95-10, "Industry Guideline for Implementing the Requirements of 10 CFR Part 54 The License Renewal Rule," Revision 6

3. LRPI-01, Davis-Besse License Renewal Project Execution Plan – AREVA Scope
4. LRPI-02, System and Structure Scoping
5. LRPI-03, Mechanical Screening and Aging Management Review
6. LRPI-04, Electrical Screening and Aging Management Review
7. LRPI-05, Structural Screening and Aging Management Review
8. LRPI-07, TLAA and Exemption Evaluations
9. LRPI-09, License Renewal Open Item Tracking System
10. LRPI-10, License Renewal Application Development and Maintenance
11. LRPD-01, System and Structure Scoping Results
12. LRPD-05, Aging Management Program Evaluation Results, with Attachments
13. LRAMR-S01, Structures Screening and Aging Management Review for the Intake Structure
14. LRAMR-S03, Structures Screening and Aging Management Review for the Containment
15. LRAMR-S04, Structures Screening and Aging Management Review for Other Structures
16. LRAMR-S06, Structures Screening and Aging Management Review of Bulk Commodities
17. LRAMR-E01, Screening and Aging Management Review for Electrical Component  
Commodity Groups
18. NOP-SS-3001, Procedure Review and Approval
19. NOP-LP-2001, Corrective Action Program
20. NOBP-LP-2018, Integrated Performance Assessment and Trending
21. NOBP-LP-2008, FENOC Corrective Action Review Board
22. NOBP-LP-2007, Condition Report Process Effectiveness Review
23. NOBP-LP-2011, FENOC Cause Analysis
24. DBBP-LRP-001, License Renewal Application Review, Approval, and Maintenance

April 19, 2011

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Vice President, Davis-Besse Nuclear Power Station  
FirstEnergy Nuclear Operating Company  
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Oak Harbor, OH 43449

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Sincerely,

*/RA/*

Brian K. Harris, Project Manager  
Projects Branch 1  
Division of License Renewal  
Office of Nuclear Reactor Regulation

Docket No. 50-346

Enclosure:  
As stated

cc w/encl: Listserv

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Letter to B. Allen from B. Harris Dated April 19, 2011

SUBJECT: SCOPING AND SCREENING AUDIT REPORT REGARDING THE  
DAVIS-BESSE NUCLEAR POWER STATION LICENSE RENEWAL  
APPLICATION (TAC NO. ME4640)

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B. Harris  
P. Cooper  
B. Harris (OGC)  
M. Mahoney