



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

February 6, 2018

Mr. Bryan C. Hanson
Senior Vice President
Exelon Generation Company, LLC
President and Chief Nuclear Officer
Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: LIMERICK GENERATING STATION, UNITS 1 AND 2 – REGULATORY AUDIT
SUMMARY REGARDING LICENSE AMENDMENT REQUEST TO ADOPT
TITLE 10 OF THE CODE OF FEDERAL REGULATIONS SECTION 50.69
(CAC NOS. MF9873 AND MF9874; EPID L-2017-LLA-0275)

Dear Mr. Hanson:

By letter dated June 28, 2017 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17179A161), Exelon Generation Company, LLC (Exelon) requested an amendment to the Renewed Facility Operating License for Limerick Generating Station, Units 1 and 2, to adopt Title 10 of the *Code of Federal Regulations* Section 50.69 for risk-informed categorization and treatment of structures, systems, and Components.

To support its review, the U.S. Nuclear Regulatory Commission staff conducted a regulatory audit that started November 14, 2017, and ended November 16, 2017, at the Exelon office, 300 Exelon Way, Kennett Square, PA 19348. The staff reviewed documents and held discussions with members of Exelon and its contractors. The regulatory audit summary is enclosed with this letter.

If you have any questions, please contact me at (301) 415-2597 or V.Sreenivas@nrc.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "V. Sreenivas", is written over a horizontal line.

V. Sreenivas, Project Manager
Plant Licensing Branch I
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-352 and 50-353

Enclosure:
Regulatory Audit Summary

cc: Listserv



UNITED STATES
NUCLEAR REGULATORY COMMISSION
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OFFICE OF NUCLEAR REACTOR REGULATION

REGULATORY AUDIT SUMMARY FOR NOVEMBER 14 – NOVEMBER 16, 2017, AUDIT

IN SUPPORT OF LICENSE AMENDMENT REQUEST TO ADOPT 10 CFR 50.69

EXELON GENERATION COMPANY, LLC

LIMERICK GENERATING STATION, UNITS 1 AND 2

DOCKET NOS. 50-352 AND 50-353

1.0 BACKGROUND

By letter dated June 28, 2017 (Reference 1), as supplemented by letter dated August 14, 2017 (Reference 2), Exelon Generation Company, LLC (Exelon, the licensee) submitted a license amendment request (LAR) to adopt Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.69, "Risk-Informed Categorization and Treatment of Structures, Systems and Components for Nuclear Power Plants," for the Limerick Generating Station, Units 1 and 2 (Limerick). The proposed license amendment would modify the licensing basis by the addition of a license condition to allow for the implementation of the provisions of 10 CFR 50.69, which allow adjustment of the scope of equipment subject to special treatment controls (e.g., quality assurance, testing, inspection, condition monitoring, assessment, and evaluation).

This voluntary risk-informed alternative rule allows power reactor licensees and license applicants to apply a risk-informed categorization process to categorize structures, systems, and components (SSCs) based on their safety significance. The final rule was published in the *Federal Register* on November 22, 2004 (69 FR 68008) (Reference 3). The U.S. Nuclear Regulatory Commission (NRC or the Commission) staff issued Regulatory Guide 1.201, Revision 1, "Guidelines for Categorizing Structures, Systems, and Components in Nuclear Power Plants According to Their Safety Significance," in May 2006 (Reference 4).

The NRC staff's review of the application has commenced in accordance with the Office of Nuclear Reactor Regulation (NRR) Office Instruction LIC-101, "License Amendment Review Procedures." The NRC staff has determined that a regulatory audit of Exelon's 10 CFR 50.69 application should be conducted in accordance with NRR Office Instruction LIC-111, "Regulatory Audits," for the staff to gain a better understanding of the licensee's proposed risk-informed categorization process.

The regulatory audit was a planned license or regulation-related activity that included the examination and evaluation of primarily non-docketed information. The regulatory audit was conducted with the intent to gain understanding, to verify information, and/or to identify information that will require docketing to support the basis of a licensing or regulatory decision. Performing a regulatory audit of the licensee's information is expected to assist the staff in

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efficiently conducting its review or gain insights on the licensee's processes or procedures. Information that the NRC staff relies upon to make the safety determination must be submitted on the docket. However, the NRC staff may review supporting information retained as records under 10 CFR 50.71 and/or 10 CFR 54.37, which, although not required to be submitted as part of the licensing action, would help the staff better understand the licensee's submitted information.

The purpose of the audit was to gain an understanding of the information needed to support the staff's licensing decision regarding the LAR and to develop appropriate requests for additional information (RAIs), as needed. The information submitted in support of the Limerick LAR is under final review, and additional information needed to support the LAR review will be formally communicated by the NRC staff using the RAI process in accordance with NRR Office Instruction LIC-101.

An audit team, which consisted of the NRC staff and NRC contractor from Pacific Northwest National Laboratories (PNNL), conducted a regulatory audit of Limerick based on its request to adopt 10 CFR 50.69. The regulatory audit took place from November 14, 2017, through November 16, 2017, at the Exelon office, 300 Exelon Way, Kennett Square, PA 19348. The regulatory audit was conducted to review the current program for compliance with the Commission's requirements in 10 CFR 50.69 focusing on the categorization of SSCs associated with risk-informing special treatment.

2.0 AUDIT ACTIVITIES

The NRC audit team consisted of six technical staff members, one licensing branch staff, and one NRC PNNL contractor. Attachment 1 provides the list of attendees from NRC, PNNL, Exelon, and other participants. Attachment 2 contains a list of documents reviewed by the team during the audit.

The audit commenced on November 14, 2017, with the NRC audit team and the licensee's staff and contractors. During the remainder of the audit, team members participated in technical discussions according to the audit plan (Reference 5). Technical discussions focused on the following major review areas: technical adequacy of the internal events and fire probabilistic risk assessment (PRA), categorization process overview, and preliminary results for the core spray system. The audit team participated in technical presentations focusing on those review areas. During the audit, the NRC staff discussed several questions associated with the LAR that will be formally sent as RAIs.

At the conclusion of the audit, the team participated in a summary exit meeting with the Exelon audit team on November 16, 2017. The NRC staff provided a brief conclusion of the audit objectives that were met and details on the path forward. There were no open items in the discussion and no deviation from the audit plan.

3.0 RESULTS OF THE AUDIT

The RAIs (Reference 6) were issued to the licensee on December 7, 2017, with a request to submit the response by December 19, 2018. The licensee submitted its response on December 19, 2018 (Reference 7).

4.0 REFERENCES

1. Letter from J. Barstow, Exelon, to NRC, "Limerick Generating Station, Units 1 and 2 – Application to Adopt 10 CFR 50.69, 'Risk-Informed Categorization and Treatment of Structures, Systems, and Components (SSCs) for Nuclear Power Plants,'" dated June 28, 2017 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17179A161).
2. Letter from J. Barstow, Exelon, to NRC, "Limerick Generating Station, Units 1 and 2 – Supplement to Application to Adopt 10 CFR 50.69, Risk-Informed Categorization and Treatment of Structures, Systems, and Components for Nuclear Power Reactors," dated August 14, 2017 (ADAMS Accession No. ML17226A336).
3. *Federal Register* Notice (69 FR 68008), "Risk-Informed Categorization and Treatment of Structures, Systems and Components for Nuclear Power Plants," dated November 22, 2004 (ADAMS Accession No. ML042960073).
4. NRC Regulatory Guide 1.201, *Revision 1*, "Guidelines for Categorizing Structures, Systems, and Components in Nuclear Power Plants according to Their Safety Significance," issued May 2006 (ADAMS Accession No. ML061090627).
5. Limerick Generating Station, Units 1 and 2, Regulatory Audit Plan and Audit Questions – License Amendment Request to Adopt 10 CFR Section 50.69 (ADAMS Accession No. ML17303A153).
6. E-mail from V. Sreenivas, NRC, to Exelon, "Limerick 50.69 License Amendment Request Application: Request for Information," dated December 6, 2017 (ADAMS Accession No. ML17341A250).
7. Letter from J. Barstow, Exelon, to NRC, "Limerick Generation Station, Units 1 and 2 – Application to Adopt 10 CFR 50.69, 'Risk-Informed Categorization and Treatment of Structures, Systems, and Components (SSCs) for Nuclear Power Plants,'" dated January 19, 2018 (ADAMS Accession No. ML18019A091).

List of Participants

U.S. Nuclear Regulatory Commission (NRC) Audit Team

- | | | |
|--------------------|-----|-------------------------------|
| • Stacey Rosenberg | NRC | Branch Chief |
| • Leslie Fields | NRC | Audit Team Leader |
| • Mihaela Biro | NRC | Audit Technical Lead |
| • Jonathan Evans | NRC | PRA |
| • Michael Levine | NRC | PRA |
| • Stephen Dinsmore | NRC | PRA (participation via phone) |
| • V. Sreenivas | NRC | Licensing Project Manager |

Pacific Northwest National Laboratory (PNNL) Team

- | | | |
|----------------|------|-----|
| • Garill Coles | PNNL | PRA |
|----------------|------|-----|

Exelon/Limerick Audit Team

- | | |
|-----------------------------|---------------------------------|
| • Glenn Stewart | Limerick Licensing Lead |
| • Shannon Rafferty-Czincila | Risk Management Senior Manager |
| • Eugene Kelly | Risk Management Senior Engineer |
| • Preeti Furtado | Engineering Manager |
| • Philip Tarpinian | 50.69 Engineer |
| • Jim Landale | 50.69 Engineer |

Jensen Hughes CFR 50.69 Support Team

- | | |
|------------------|---|
| • Barry Sloane | Director, Exelon Risk Management Program |
| • David Passehl | Technical Lead, 50.69 PRA Categorization |
| • Ken Saunders | 50.69 Engineer |
| • David Bidwell | 50.69 Passive Engineer |
| • Charlie Young | Operations Support |
| • Brian Albinson | Internal Events/Internal Flooding PRA Model Owner |
| • Mike Saunders | Limerick Fire PRA Model Owner |
| • Greg Zucal | Risk Management Engineer |

List of Documents Reviewed During the Audit

Limerick Documents Available for Review on the Exelon Portal/Laptop

The licensee provided an extensive list of supporting documents (e.g., analyses, calculations, reports, drawings, and procedures) on the Limerick document portal available during the week of the audit.

Additional Documents/Procedures Reviewed on Site

- 50.69 Categorization Flowchart
- ER-AA-569, 10 CFR 50.69 Program Description
- ER-AA-569-1001, 10 CFR 50.69, Active Component Risk Significance Insights
- ER-AA-569-1002, 10 CFR 50.69, Passive Component Categorization
- ER-AA-569-1003, 10 CFR 50.69, Risk Informed Categorization for Structures, Systems, and Components
- ER-AA-569-1005, Integrated Decision-Making Panel for Risk Informed SSC Categorization Duties and Responsibilities
- ER-AA-569-1007, Individualized Instruction of 50.69 Project Team and Site Personnel
- Limerick Generating Station Fire PRA Focused Scope Peer Review Report: Use of THIEF, performed by Jensen Hughes for Exelon Generation Company, June 23, 2017
- LG-LAR-16, PRA Technical Adequacy in Support of the Licensee's Amendment Request to Implement 10 CFR 50.69, November 13, 2017
- Core Spray System, 10 CFR 50.69, Risk-Informed Categorization for Structures, Systems, and Components

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FEBRUARY 6, 2018

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NAME	VSreenivas	IBetts	LRonewicz	JDanna	VSreenivas
DATE	02/05/2018	02/05/2018	02/05/2018	02/06/2018	02/06/2018

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