



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

September 15, 2016

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

SUBJECT: CALVERT CLIFFS NUCLEAR POWER PLANT, UNITS 1 AND 2 – REGULATORY
AUDIT PLAN FOR SEPTEMBER 19-21, 2016, AUDIT IN SUPPORT OF THE
LICENSE AMENDMENT REQUEST TO IMPLEMENT RISK-INFORMED
TECHNICAL SPECIFICATIONS INITIATIVE 4B (CAC NOS. MF7415 AND
MF7416)

Dear Mr. Hanson:

By application dated February 25, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16060A223), Exelon Generation Company, LLC (Exelon, the licensee), submitted a license amendment request to implement changes to the Calvert Cliffs Nuclear Power Plant (CCNPP), Units 1 and 2, Technical Specifications that establishes a risk-informed approach for voluntary extension of completion times for limiting conditions for operations based on the Nuclear Energy Institute 06-09-A methodology, "Risk-Informed (RI) Technical Specification (TS) Initiative 4B Risk-Managed Technical Specification Guidelines." The proposed amendments would modify the CCNPP TS requirements to permit the use of risk-informed completion times in accordance with TS Task Force (TSTF)-505, Revision 1, "Provide Risk-Informed Extended Completion Times - RITSTF Initiative 4b."

To support its safety evaluation, the U.S. Nuclear Regulatory Commission staff will conduct an audit at the Exelon Corporate Office in Kennett Square, Pennsylvania during September 19 to 21, 2016. The Enclosure to this letter provides an audit plan in support of this audit.

B. Hanson

- 2 -

If you have any questions, please contact me at 301-415-1030 or via e-mail at Richard.Guzman@nrc.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "R. Guzman", with a long horizontal flourish extending to the right.

Richard V. Guzman, Senior Project Manager
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-317 and 50-318

Enclosure:
Regulatory Audit Plan

cc w/encl: Distribution via Listserv



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

REGULATORY AUDIT IN SUPPORT OF THE LICENSE AMENDMENT REQUEST TO

IMPLEMENT RISK-INFORMED TECHNICAL SPECIFICATIONS INITIATIVE 4B

EXELON GENERATION COMPANY, LLC

CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NOS. 1 AND 2

DOCKET NOS. 50-317 AND 50-318

(CAC NOS. MF7415 AND MF7416)

1.0 BACKGROUND

Exelon Generation Company, LLC (Exelon, the licensee) submitted a license amendment request (LAR) (Reference 1) to modify technical specification (TS) requirements to permit the use of Risk Informed Completion Times in accordance with Technical Specification Task Force (TSTF)-505, Revision 1 "Provide Risk-Informed Extended Completion Times - RITSTF Initiative 4b," for Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2 (CCNPP). The availability of this TS improvement is described in the *Federal Register* on March 15, 2012 (77 FR 15399).

The Nuclear Regulatory Commission (NRC) staff's review of the LAR has commenced in accordance with the Office of Nuclear Reactor Regulation's (NRR) Office Instruction LIC-101, "License Amendment Review Procedures." The NRC staff has determined that a regulatory audit of the Calvert Cliffs LAR will be conducted in accordance with the NRR Office Instruction LIC-111, "Regulatory Audits," for the staff to gain a better understanding of the licensee's proposed risk-informed completion time (RICT) program.

A regulatory audit is a planned, license or regulation-related activity that includes the examination and evaluation of primarily non-docketed information. A regulatory audit is 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 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 Title 10 of the *Code of Federal Regulations* (10 CFR) 50.71 maintenance of records, making of reports and/or 10 CFR 54.37 additional records and record-keeping requirements,

Enclosure

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 objectives of this regulatory audit are to:

- Gain a better understanding of the detailed calculations, analyses and bases underlying the RITSTF Initiative 4b LAR and confirm the staff's understanding of the LAR;
- Review the approach for developing and implementing nuclear power station Risk-Managed Technical Specifications programs;
- Identify further information that is necessary for the licensee to submit in order for staff to reach a licensing or regulatory decision; discuss requests for additional information (RAIs); and
- Review the extent that the licensees' proposed amendments to modify TS requirements for RICT are in accordance with TSTF-505 and Nuclear Energy Institute (NEI) 06-09-A (Reference 4);
- Review whether the proposed configurations will introduce any adverse effects on the ability or capacity of plant equipment to perform its design basis function(s); and
- Review the relationship between any fixed completion times (i.e., not RICT calculations) and currently acceptable NRC guidance.

2.0 REGULATORY AUDIT BASIS

The basis of this audit is the licensee's LAR (Reference 1), and the Standard Review Plan Section 19.2, "Review of Risk Information Used to Support Permanent Plant-Specific Changes to the Licensing Basis: General Guidance," (Reference 2). References 3 through 6 provide additional information that will be used to support the audit.

3.0 REGULATORY AUDIT SCOPE OR METHOD

The staff will review the licensee's RICT program and its application to the TS Completion Times as proposed in the LAR. The NRC staff will include in the scope of the audit a review of the findings and observations for the Internal Events and Fire Probabilistic Risk Assessment (PRA) models, the RICT program implementation including both technical and programmatic aspects, and the quantification of risk due to other significant external events.

The team will review the risk-informed approach for establishing the extended completion times, and confirm the consistency of the approach with the philosophy of NRC Regulatory Guide (RG) 1.174 (Reference 6).

The team will review the PRA methods used to determine the risk impact from which the revised completion times are obtained, the PRA technical adequacy addressed through NRC RG 1.200 (Reference 3), and the quantification of risk due to other significant external events through PRA or bounding methods.

4.0 INFORMATION AND OTHER MATERIAL NECESSARY FOR THE AUDIT

The NRC audit team will require access to licensee personnel knowledgeable in all aspects of the Calvert Cliffs RITSTF Initiative 4b LAR. At a minimum, a hardcopy and electronic copy of the following documentation should be available to the audit team on the first day of the audit. In addition, presentations and specific discussion topics will be requested prior to the audit.

Documents

- Analyses supporting PRA Success Criteria which differ from Design Basis Criteria
- Internal Events and Fire PRA documentation logic models should be available on computer with licensee support
- Internal Events and Fire Events PRA peer review reports
- Risk Management Action (RMA) procedure
- Plant and PRA configuration control procedures

Presentations

- PRA functional definition, development, and use presentation
- RICT Program Presentation
- Configuration Risk Management Program (CRMP) demonstration (including presentation of user interface for evaluations)
- Walkthrough sample RICT calculations, and RMAs

Discussions

- How external events are considered for the RICT
- How RMAs are determined and implemented
- Reviews and acceptance testing of the CRMP model
- How the CRMP is maintained consistent with the baseline PRA model
- How cumulative risk will be evaluated and tracked
- LAR and RICT Program
- Inspection-related aspects of Risk-Informed Technical Specification Initiative 4B

5.0 TEAM ASSIGNMENTS

The audit will be conducted by NRC staff from NRR Division of Risk Assessment, PRA Licensing Branch; NRR Division of Engineering, Instrumentation and Controls Branch (EICB) and Electrical Engineering Branch; and NRR Division of Safety Systems, TSs Branch (STSB). Furthermore, NRC contractors from the Pacific Northwest National Laboratories (PNNL) will support the technical audit team members. Staff knowledgeable in PRA and the TSs will comprise the audit team. Observers at the audit may include NRR project managers and various regional inspectors.

The NRC audit team leader will be Leslie Fields, and the NRC technical leads will be Mihaela Biro (PRA) and Margaret Chernoff (STSB). The audit team leader will conduct daily briefings on the status of the review and coordinate audit activities while on site. The tables below show:

(1) audit milestones and schedule, and (2) planned audit team composition and their assigned areas for review during the audit.

Audit Milestones and Schedule		
Activity	Time Frame	Comments
RAI Clarification Call	08/29/16 or later	Teleconference from NRC HQ to provide clarification of draft RAIs.
Onsite Audit Kick-Off Meeting	09/19/16	NRC will present a brief team introduction and discuss the scope of the audit. The licensee should introduce team members and give logistics for the week. In addition, the licensee should be prepared to give a virtual tour (if needed) of the protected area in the plant.
End of Day Summary Briefings	09/19/2016 – 09/20/2016	Meet with licensee to provide a summary of any significant findings and requests for additional assistance.
Provide Rooms for Focused Topic Discussions	09/19/2016 – 09/20/2016	Facilitate discussions between site and staff technical areas.
Onsite Audit Exit Meeting	09/21/2016	NRC staff will hold a brief exit meeting, with licensee staff to conclude audit activities.
Audit Summary (see 8.0)	60 days after exit	To document the audit.

Regulatory Audit Team and Assignments			
SRP 19.2 Section	Audit Plan Review Areas	Lead	Support
III.2	Engineering evaluations, previous approval	Team	Team
III.2.1	Defense in depth and safety margins	M. Biro	PNNL
III.2.2	Risk Assessment	M. Biro	PNNL
III.2.2.1	External Hazards Risk Contribution	M. Biro	PNNL
III.2.2.4.1	PRA Technical Adequacy	M. Biro	PNNL
III.2.2.5.2	Uncertainty/Assumptions	M. Biro	PNNL
III.2.2.5.4	Documentation, Configuration Control, Quality	M. Biro	PNNL
III.2.2.5.4	Risk Management Actions	M. Biro	PNNL
III.3	Monitoring program	M. Biro	PNNL
III.3	PRA Functionality	M. Biro	PNNL
III.2.2.4.1	PRA Technical Adequacy	M. Biro	PNNL
III.2.2.5.2	Uncertainty/Assumptions	M. Biro	PNNL
III.2.2.5.4	Documentation, Configuration Control, Quality	Team	Team
	Plant-specific Technical Specifications	M. Chernoff, N. Carte, K. West	N/A

6.0 LOGISTICS

This regulatory audit is starting September 19, 2016, and will last approximately 3 days. The NRC staff conducted a conference call on September 12, 2016, to discuss the details of the Generic Audit Plan. The dates in the milestone chart are subject to change based on mutual agreement between the licensee and the NRC. An entrance meeting for this audit will be held on the first day at 9:00 AM and an exit meeting will be held the final audit day at 12:00 noon or later based on a mutually agreed upon time. The NRC audit team leader will provide daily progress briefings to licensee personnel on the first and second day of the audit.

The audit will take place at the licensee's corporate office in Kennett Square, Pennsylvania, where the necessary reference material and appropriate Calvert Cliff's technical reviewers will be available to support the review. Visitor access will be requested for the entire audit team. We recommend that security paperwork and processing be handled on the first day of the audit week

7.0 SPECIAL REQUESTS

The regulatory audit team will require the following to support the regulatory audit:

- Two computers with internet access and printing capability in the NRC room, access to the site portal, and wired or wireless internet access.
- 2 to 3 private conference rooms with conference calling capability should be made available. The main NRC conference room should be set up for 6 to 8 NRC staff and contractors. An additional conference room should be available to accommodate up to 20 people for PRA technical discussions; another room should be arranged for up to 10 people for TSs and Instrumentation and Control discussions.
- Access to licensee personnel knowledgeable in the PRA, TSs, and Instrumentation and Control. In addition, Exelon staff who participated in preparing the LAR submittal should be available for discussion.
- Unescorted access to lavatory facilities.

8.0 DELIVERABLES

A regulatory audit summary will be issued within approximately 90 days after the completion of the audit. The summary will use the guidance of NRR Office Instruction LIC-111 for content. Draft RAIs were sent to the licensee on August 21, 2016 to support the audit discussion. Formal RAIs will be sent separately to the licensee after completion of the audit. The audit summary will be placed in ADAMS.

9.0 REFERENCES

1. Letter from David P. Helker, Manager, Exelon Generation Company, LLC and E. Villar of the Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2 to U.S. Nuclear Regulatory Commission, "License Amendment Request to modify the Calvert Cliffs Nuclear Power Plant, Units 1 and 2 Technical Specification requirements to permit the use of risk-informed completion times in accordance with TSTF-505, Revision 1, Provide Risk-Informed Extended Completion Times – RITSTF Initiative 4b.," February 25, 2016, (ADAMS Accession No. ML16060A223).
2. U.S. NRC, Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants, NUREG-0800, Section 19.2, "Review of Risk Information Used to Support Permanent Plant-Specific Changes to the Licensing Basis: General Guidance," June 2007 (ADAMS Accession No. ML071700658).
3. Regulatory Guide 1.200, Rev. 2, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," March 2009 (ADAMS Accession No. ML090410014).
4. Nuclear Energy Institute, NEI 06-09, "Risk-Informed Technical Specification Initiative 4b Risk-Managed Technical Specifications (RMTS) Guidelines," Revision 0, November 2006 (ADAMS Accession No. ML063390639).
5. Nuclear Regulatory Commission (NRC) Letter to B. Bradley, Manager, Nuclear Energy Institute (NEI), "Final Safety Evaluation for Nuclear Energy Institute (NEI) Topical Report (TR) 06-09, 'Risk-Informed Technical Specification Initiative 4B Risk-Managed Technical Specification Guidelines'," Revision 0, May 17, 2007 (ADAMS Accession No. ML071200238).
6. Regulatory Guide 1.174, Rev. 2, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," May 2011 (ADAMS Accession No. ML100910006).

B. Hanson

- 2 -

If you have any questions, please contact me at 301-415-1030 or via e-mail at Richard.Guzman@nrc.gov.

Sincerely,

/RA/

Richard V. Guzman, Senior Project Manager
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-317 and 50-318

Enclosure:
Regulatory Audit Plan

cc w/encl: Distribution via Listserv

DISTRIBUTION:

PUBLIC
LPL1-1 R/F
RidsACRS_MailCTR Resource
RidsNrrDorlLpl1-1 Resource
RidsNrrDraApla Resource
RidsNrrLAKGoldstein Resource
RidsNrrPMCalvertCliffs Resource
RidsRgn1MailCenter Resource
LFields, NRR/DRA/APLA
MBiro, NRR/DRA/APLA
MChernoff, NRR/DSS/STSB

ADAMS Accession No.: ML16249A003

* Input provided by memo dated 8/10/16

OFFICE	NRR/DORL/LPL1-1/PM	NRR/DORL/LPL1-1/LA	NRR/DRA/APLA/BC
NAME	RGuzman	KGoldstein	SRosenberg*
DATE	9/6/16	9/8/16	8/10/16
OFFICE	NRR/DORL/LPL1-1/BC	NRR/DORL/LPL1-1/PM	
NAME	TTate	RGuzman	
DATE	9/15/16	9/15/16	

OFFICIAL RECORD COPY