



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

July 20, 2021

Mr. David P. Rhoades  
Senior Vice President  
Exelon Generation Company, LLC  
President and Chief Nuclear Officer  
Exelon Nuclear  
4300 Winfield Road  
Warrenville, IL 60555

SUBJECT: CALVERT CLIFFS NUCLEAR POWER PLANT, UNITS 1 AND 2 –  
AUDIT PLAN IN SUPPORT OF REVIEW OF LICENSE AMENDMENT  
REQUEST REGARDING CHANGE SPENT FUEL POOL COOLING  
DESIGN BASIS (EPID L-2021-LLA-0112)

Dear Mr. Rhoades:

By letter dated June 14, 2021 (Agencywide Documents Access and Management System Accession No. ML21165A406), Exelon Generation Company, LLC (Exelon) submitted a license amendment request (LAR) for Calvert Cliffs Nuclear Power Plant, Units 1 and 2 (Calvert Cliffs 1 and 2). In its LAR, Exelon proposes changes to the licensing design basis for spent fuel pool cooling at Calvert Cliffs 1 and 2.

During the initial review of the LAR, the U.S. Nuclear Regulatory Commission (NRC) staff identified several items that require further clarification and detailed explanations. The NRC staff will conduct a regulatory audit to support its review of the LAR in accordance with the enclosed audit plan. A regulatory audit is a planned activity that includes the examination and evaluation of primarily non-docketed information. The audit will be conducted to increase the NRC staff's understanding of the LAR and identify information that will require docketing to support the NRC staff's regulatory finding.

The audit will be conducted using video conferencing and an eDocs web portal (also known as an online portal, electronic portal, ePortal, electronic reading room) from July 26 to August 27, 2021. The logistics and scope of this audit were discussed with your staff on July 19, 2021. The audit plan is enclosed.

D. Rhoades

-2-

If you have any questions, please contact me by telephone at 301-415-2871 or by e-mail to [Michael.Marshall@nrc.gov](mailto:Michael.Marshall@nrc.gov).

Sincerely,

**/RA/**

Michael L. Marshall, Jr., Senior Project Manager  
Plant Licensing Branch I  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-317 and 50-318

Enclosure:  
Audit Plan

cc: Listserv



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

AUDIT PLAN

REGARDING SPENT FUEL POOL COOLING LICENSE AMENDMENT REQUEST

EXELON GENERATION COMPANY, LLC

CALVERT CLIFFS NUCLEAR POWER PLANT, UNITS 1 AND 2

DOCKET NOS. 50-317 AND 50-318

1.0 BACKGROUND

By letter dated June 14, 2021 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML21165A406), Exelon Generation Company, LLC (Exelon) submitted a license amendment request (LAR) for Calvert Cliffs Nuclear Power Plant, Units 1 and 2 (Calvert Cliffs 1 and 2). In its LAR, Exelon requests changes to the Licensing Design Basis for the Spent Fuel Pool Cooling (SFPC) System at Calvert Cliffs 1 and 2. The proposed changes would revise the Updated Final Safety Analysis Report Section 9.4, "Spent Fuel Pool Cooling System," design basis to allow for a full core offload without being supplemented with one train of the Shutdown Cooling (SDC) system. In addition, a new section to the Technical Requirements Manual 15.9.5, "Full Core Offload," has been developed to provide for additional limits on operation based on number of fuel assemblies offloaded, time after shutdown, spent fuel pool cooling system service water temperature, number of operable trains of the SFPC System, and SDC system availability.

2.0 REGULATORY AUDIT BASES

A regulatory audit is a planned license or regulation-related activity that includes the examination and evaluation of primarily non-docketed information. The audit is conducted with the intent to gain understanding, to verify information, and to identify information that will require docketing to support the basis of a licensing or regulatory decision. Performing a regulatory audit is expected to assist the NRC staff in efficiently conducting its review and gaining insights to the licensee's processes and procedures. Information that the NRC staff relies upon to make the safety determination must be submitted on the docket.

This regulatory audit is based on the following regulatory requirements and guidance:

- Title 10 of the *Code of Federal Regulations* part 50 Appendix A, General Design Criterion (GDC) 44, "Cooling Water"
- GDC 61, "Fuel Storage and Handling and Radioactivity Control," (Exelon states that for Calvert Cliffs 1 and 2, this correlates to pre-GDC criterion 67)

- Regulatory Guide 1.13, Rev 2, “Spent Fuel Pool Storage Facility Design Basis”
- NUREG 0800, Standard Review Plan 9.1.3, “Spent Fuel Pool Cooling and Cleanup System”

### 3.0 SCOPE

The audit team will view the documentation and calculations that provide the technical support for the LAR. The scope of the NRC staff’s audit will focus on the following subjects:

- Calculations and analyses supporting the spent fuel pool heat up
- Calculations and analyses supporting fuel decay heat assumptions
- Significance of different core offload cases used
- Calculations and analyses supporting the spent fuel pool subcriticality
- Calculations and analyses supporting structural integrity of the spent fuel pool

In addition, the audit team will request to discuss these topics with Exelon’s subject matter experts. The NRC staff will conduct this audit under the guidance provided in NRR Office Instruction LIC-111, “Regulatory Audits,” Revision 1 (ADAMS Accession No. ML19226A274).

### 4.0 INFORMATION AND OTHER MATERIAL NECESSARY FOR THE REGULATORY AUDIT

The staff requests that the documents, data, and calculations regarding the topics be made available to the staff in an Exelon’s electronic reading room, specifically the following and any supporting documents:

No.	LAR Ref. No.	Document Title
1	2	ILD Calculation, “CCNPP Spent Fuel Pool Heat-up Analysis”
2	3	CA06535 Rev. 0002, “SFP Decay Heat for 24-M VAP and Framatome Core with App. K Power Uprate”
3	4	CA03959 Rev. 0002, “Spent Fuel Pool Heat Removal Capability”
4	10	CA09085, “Spent Fuel Pool”
5	11	CA06011, “Unit 1 Spent Fuel Pool Enrichment Limit With Soluble Boron Credit”
6	12	CA06015, “Unit 2 Spent Fuel Pool Criticality Analysis With Soluble Boron Credit But Without Boraflex Credit”
7	13	CA07456, “Unit 1 Spent Fuel Pool Enrichment Limit With Soluble Boron Credit For Areva Fuel”
8	14	CA07142, “Unit 2 Spent Fuel Pool Criticality Analysis With Soluble Boron And Burnup Credit For Areva Fuel”
9	15	CA06067, “Validation of Calvert Cliffs Fuel Handling Accident For Increased Fuel Rod Pressure Of 1400 PSIG”

No.	LAR Ref. No.	Document Title
10	16	ECP 21-000209, "Modify Spent Fuel Pool Decay Heat Analysis for Full Core Offload"
11	N/A	CA06535, "Spent Fuel Pool Decay Heat for 24-M VAP Core with Appendix K Power Uprate," Revision 1

The staff acknowledges and will observe appropriate handling and protection of proprietary information made available for the audit. The NRC staff will not remove non-docketed information from the audit site or eDocs web portal.

#### 5.0 AUDIT TEAM

The following are the NRC audit team members:

- Harry Wagage, Senior Safety and Plant Systems Engineer, Team Leader
- Adam Rau, General Engineer
- George Wang, Civil Engineer (Structural)
- Angelo Stubbs, Senior Safety and Plant Systems Engineer
- Muhammad Razzaque, Nuclear Engineer
- Michael Marshall, Senior Project Manager

#### 6.0 LOGISTICS

The audit will be conducted using video conferencing and an eDocs web portal (also known as an online portal, electronic portal, ePortal, or electronic reading room) from July 26 to August 27, 2021. During the audit, information should be shared using video conference and telephone conference. The audit kick-off meeting will be held at 11:00 am on July 26, 2021.

Representatives of Exelon are requested to be available for video or audio conferences on the days and times on the audit schedule below. The NRC project manager will coordinate any changes to the audit schedule and location with the licensee. The NRC staff would like remote access to the available documents listed in Section 4.0 by July 26, 2021.

Audit Schedule		
Date	Time	Subject
July 26, 2021	11:00 am – 12:00 pm	Audit Kick-Off Meeting
July 29, 2021	10:30 am to 12:00 pm	Scheduled Discussion
August 5, 2021	10:30 am to 12:00 pm	Scheduled Discussion
August 12, 2021	10:30 am to 12:00 pm	Scheduled Discussion
August 19, 2021	10:30 am to 12:00 pm	Scheduled Discussion
August 27, 2021	11:00 am – 12:00 pm	Audit Exit Meeting

## 7.0 SPECIAL REQUESTS

The following conditions associated with the eDocs web portal must be maintained throughout the duration that the NRC staff have access to the eDocs web portal:

- The eDocs web will be password-protected, and separate passwords will be assigned to the NRC staff who are participating in the audit.
- The eDocs web will be sufficiently secure to prevent the NRC staff from printing, saving, downloading, or collecting any information on the online portal.
- Conditions of use of the eDocs web will be displayed on the login screen and will require acknowledgment by each user.

Username and password information should be provided directly to the NRC staff. The NRC project manager will provide Exelon the names and contact information of the NRC staff who will be participating in the audit. All other communications should be coordinated with the NRC project manager. NRC staff access to the eDocs web portal needs to be terminated 30 days after the end of the regulatory audit.

## 8.0 DELIVERABLES

On completion of the audit, the staff will prepare an audit summary report within 60 days that will be entered as an official agency record in ADAMS. If the NRC staff identifies information during the audit that is needed to support its regulatory decision, the staff will issue requests for additional information to the licensee after the audit.

SUBJECT: CALVERT CLIFFS NUCLEAR POWER PLANT, UNITS 1 AND 2 –  
 AUDIT PLAN IN SUPPORT OF REVIEW OF LICENSE AMENDMENT  
 REQUEST REGARDING CHANGE SPENT FUEL POOL COOLING  
 DESIGN BASIS (EPID L-2021-LLA-0112) DATED JULY 20, 2021

**DISTRIBUTION:**

PUBLIC

PM File Copy

RidsNrrDorLpl1

RidsRgn1MailCenter

RidsACRS\_MailCTR

RidsNrrPMCalvertCliffs

RidsNrrLAKEntz

RidsNrrDexEseb

RidsNrrDssScpb

RidsNrrDssSnsb

AMcCraw, OEDO

RRichardson, OEDO

AStubbs, NRR

ARau, NRR

GWang, NRR

HWagage, NRR

MRazzaque, NRR

**ADAMS Accession No.: ML21200A074**

OFFICE	NRR/DORL/LPL1/PM	NRR/DORL/LPL1/LAiT	NRR/DSS/SCP/BC	NRR/DSS/SNSB/BC
NAME	MMarshall	KEntz	BWittick	SKrepel
DATE	7/19/2021	7/19/2021	7/19/2021	7/19/2021
OFFICE	NRR/DEX/ESEB/BC	NRR/DORL/LPL1/BC	NRR/DORL/LPL1/PM	
NAME	JColaccino	JDanna	MMarshall	
DATE	7/19/2021	7/20/2021	7/20/2021	

**OFFICIAL RECORD COPY**