



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

September 25, 2023

Rod L. Penfield
Energy Harbor Nuclear Corp.
Perry Nuclear Power Plant
P.O. Box 97, Mail Stop A-PY-A290
Perry, OH 44081-0097

SUBJECT: PERRY NUCLEAR POWER PLANT, UNIT NO. 1 – AGING MANAGEMENT
AUDIT PLAN REGARDING THE LICENSE RENEWAL APPLICATION
REVIEW

Dear Mr. Penfield,

By letter dated July 3, 2023, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML23184A081), Energy Harbor Nuclear Corp. (the applicant) submitted an application for license renewal of Facility Operating License Nos. NPF-58 for Perry Nuclear Power Plant (PNPP), Unit 1, to the U.S. Nuclear Regulatory Commission (NRC or staff). The applicant submitted the application pursuant to Title 10 of the *Code of Federal Regulations* Part 54, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants," for license renewal.

The NRC plans to conduct an Aging Management Audit from September 25, 2023 – December 15, 2023, in accordance with the enclosed regulatory audit plan. The Aging Management Audit will be conducted at NRC Headquarters and the PNPP site, as appropriate.

If you have any questions, please contact Vaughn Thomas at 301-415-5897 or by email at vaughn.thomas@nrc.gov.

Sincerely,

/RA/

Lauren K. Gibson, Chief
License Renewal Projects Branch
Division of New and Renewed Licenses
Office of Nuclear Reactor Regulation

Docket Nos. 50-440

Enclosure:
Aging Management Audit Plan

cc: w/encl.: ListServ

SUBJECT: PERRY NUCLEAR POWER PLANT, UNIT NO. 1 – AGING MANAGEMENT
 AUDIT PLAN REGARDING THE LICENSE RENEWAL APPLICATION
 REVIEW
 DATED: SEPTEMBER 25, 2023

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ADAMS Accession No.: ML23261B019 *via email NRR-106

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NAME	VThomas	LGibson
DATE	09/19/2023	09/25/2023

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Audit Plan

Perry Nuclear Power Plant, Unit 1 License Renewal Application Aging Management Regulatory Audit

**September 25, 2023 –
December 15, 2023**

**Division of New and Renewed Licenses
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission**

Audit Plan
Perry Nuclear Power Plant,
Unit 1
License Renewal Application
Aging Management Regulatory Audit

1. Background

By letter dated July 3, 2023, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML23184A081), Energy Harbor Nuclear Corp. (the applicant) submitted an application for license renewal of Facility Operating License Nos. NPF-58 for Perry Nuclear Power Plant (PNPP), Unit No. 1, to the U.S. Nuclear Regulatory Commission (NRC or staff).

In accordance with the requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 54, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants," NRC staff will perform an aging management regulatory audit to gain a better understanding of (1) the applicant's methodology to identify the systems, structures, and components (SSCs) to be included within the scope of license renewal and subject to an aging management review (AMR), and (2) the applicant's aging management programs (AMPs), AMR items, time-limited aging analyses (TLAAs), and associated bases and documentation as applicable.

2. Regulatory Audit Bases

License renewal requirements are specified in 10 CFR Part 54, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants." Guidance is provided in NUREG-1800, Revision 2, "Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants" (SRP-LR), dated December 2010, and NUREG-1801, Revision 2, "Generic Aging Lessons Learned (GALL) Report," dated December 2010.

3. Regulatory Audit Scope of Review

Operating Experience Review

The scope of this license renewal regulatory audit of PNPP is the staff's independent review of plant specific operating experience (OE). The review is performed to identify pertinent examples of age-related degradation, as documented in the applicant's corrective action program (CAP) database. The results of the audit will be used to support the staff's further review of AMPs, TLAAs and aging management review line items to provide a basis for the staff's conclusions on the ability of the applicant's proposed AMP and TLAAs to manage the effects of aging in the period of extended operation.

The staff will use risk insights to focus the breadth and depth of its review of plant specific operating experience. However, the staff's review is not limited to risk-significant systems and components because 10 CFR Part 54 is a deterministic rule. The staff must conclude that there is reasonable assurance that activities will continue to be conducted in accordance with the current licensing basis and the effects of aging will be managed during the period of extended operation for all structures and components within the scope of 10 CFR Part 54.

Scoping and Screening Review

The purpose of the scoping and screening review is to evaluate the applicant's scoping and screening methodology used to identify SSCs within the scope of license renewal and subject to AMR, and the results of the implementation of the methodology. The review is performed by evaluating the scoping and screening process and results, as documented in the license renewal application (LRA), implementing procedures, reports, and drawings, such that the NRC staff:

- Obtains an understanding of the process used to identify the SSCs within the scope of license renewal and to identify the structures and components subject to an AMR; and
- Has sufficient docketed information to allow the NRC staff to reach a conclusion on the adequacy of the scoping and screening methodology results, as documented in the LRA.

AMP, AMR, and TLAA Review

The scope of the AMP, AMR, and TLAA review is to: (a) examine the applicant's AMPs, AMR items, and TLAAs; (b) verify the applicant's claims of consistency with the corresponding GALL Report AMPs, and AMR items; and (c) assess the adequacy of the TLAAs. Enhancements and exceptions will be evaluated on a case-by-case basis with the results documented in the safety evaluation (SE).

The NRC staff will audit Program Elements 1 – 10 (scope, preventive actions, parameters monitored or inspected, detection of aging effects, monitoring and trending, acceptance criteria, corrective actions, confirmation process, administrative controls, and OE) of the AMPs against the elements of the associated AMP described in the GALL Report. In addition, the NRC staff will verify that the conditions at the plant are bounded by the conditions for which the GALL Report program was evaluated.

The NRC staff will also examine the applicant's program bases documents and related references for AMPs, AMR items, and TLAAs, and interview applicant representatives to obtain additional clarification.

The NRC staff will use risk insights to inform the prioritization of its review of documentation associated with AMPs, AMR items, and TLAAs and to focus the breadth and depth of its review of plant specific operating procedures and OE. However, the NRC staff's review is not limited to risk-significant systems and components because 10 CFR Part 54 is a deterministic rule and the NRC staff must conclude that there is reasonable assurance that activities will continue to be conducted in accordance with the current licensing basis and the effects of aging will be managed during the period of extended operation for all structures and components within the scope of 10 CFR Part 54.

The NRC staff has reviewed the list of risk-significant systems and components provided by the applicant to inform the establishment of priorities for the performance of the scoping and screening review.

4. Audit Activities

Throughout the Aging Management Audit technical staff will conduct a technical review of the LRA, as supplemented and revised, the AMP basis documents, license renewal drawings, and other PNPP supporting documents, as appropriate and requested, on the applicant's electronic portal (ePortal). The project team requires continued PNPP document review capability via the ePortal throughout the audit process. Document requests for upload to the ePortal shall be made as needed via the NRC safety project manager to the appropriate applicant licensing manager.

The Aging Management Audit will consist of four parts that will be scheduled and coordinated between the NRC staff and the applicant. Each audit part allows the applicant to provide context on the ePortal's contents and configuration, the methods used to develop the LRA, the corresponding results, and any areas unique to the PNPP LRA. The staff will have the opportunity to have discipline-specific discussions with the applicant to discuss the approaches used for evaluation and development of AMPs, TLAAs, AMR items, with the consideration of OE. In addition, the staff may identify specific technical areas where the staff would benefit from a presentation or discussion to provide additional context to support the staff's review. The staff is to review the information needed to perform the safety review and use the information, to the extent possible, to begin developing draft input for the SE, resulting in an "SE with open items."

At the conclusion of the staff's technical review, the staff will identify any areas requiring inclusion in appropriate formal audit parts outlined below. The four Aging Management Audit parts include:

- Part 1: In-Office Operating Experience Audit

The staff will review:

(1) Applicant's Process to Identify OE Used in Development of AMPs. The staff requests that the applicant provides a presentation on the process used to identify and evaluate the pertinent OE that was used to inform the development of the AMPs as discussed in the LRA and basis documentation.

(2) Use of OE Contained in AMP Report-Out Documents. The staff requests that the applicant discuss how the OE contained in the AMP report-out documents (e.g., reports of inspections, assessments, AMP effectiveness reviews) is in alignment with information contained in the CAP database and how the process described in (1) along with the use of the report-out information would include any pertinent OE otherwise contained in the CAP database. The applicant should demonstrate that OE identified by the process or included in the report-out documents is bounding of OE that should be considered for developing the LRA. Additionally, the applicant should provide examples of the report-out documents and corresponding corrective action reports.

(3) Staff's Review of Age-Related OE Contained in the CAP Database. Following the applicant's presentations on the process to identify and evaluate OE as well as the information included in the report-out documents, the staff should determine if there are any specific areas of OE that have not been sufficiently addressed or if there is a need to sample the information discussed by the applicant to verify the applicant's results. If the staff identifies such a need, the staff will have an opportunity to perform an independent review of age-related OE contained in the CAP database, as necessary, to provide

reasonable assurance that the applicant has adequately identified and evaluated pertinent OE in the development of the LRA in Part 2 of the Aging Management Audit.

- Part 2: On-Site Scoping and Screening Audit

The applicant presents on references, tools, procedures and reports, and approach to scoping and screening methodology developed and applied to meet the requirements of 10 CFR 54.4(a) and 10 CFR 54.21. The presentation includes technical references used for scoping and screening – updated final safety analysis report, equipment database, Maintenance Rule information, program tools used for LRA development (database), implementing procedures, guidance documents and reports, and the plant structural layout.

The staff, with the assistance of the applicant, will conduct a detailed review of scoping and screening methodology for mechanical, electrical, and structural systems and components. As applicable, the review will include implementing procedures; source information; electronic databases; definition of safety-related; design bases events consideration; identification of SSCs within scope; identification of intended functions; scoping/screening boundaries; license renewal drawings; identification of structural systems and components subject to AMR; exceptions taken to Nuclear Energy Institute 95-10, Appendix F, and scoping and screening reports. The review may also include discussions of commodities, consumables, insulation, overhead handling systems, abandoned equipment, and staged equipment, as applicable.

As necessary, the staff will conduct walkdowns of structural systems and components within the scope of license renewal in accordance with 10 CFR 54.4(a). The walkdown includes a review of areas, rooms or structures containing a combination of structural systems and components within the scope of license renewal.

- Part 3: On-Site Audit

The purpose of the On-Site Audit is to make visual observations of areas, equipment conditions, and configurations, and will be performed by an integrated review team. The On-Site Audit will target specific areas, equipment, and systems, and the staff shall provide the applicant with the audit scope prior to the On-Site Audit to ensure access and to verify that licensee support is available.

Part 4: In-Office Breakout Sessions

During the In-Office Breakout Sessions, the NRC staff will have the opportunity to discuss various basis documents, license renewal drawings, references, condition/corrective action reports, and to obtain additional clarification related to the LRA safety review with the applicant.

The NRC staff will hold breakout sessions, via electronic means, of communication with NRC staff and PNPP subject matter experts to discuss various basis documents, references, condition/corrective action reports, and interview PNPP representatives to obtain additional clarification related to the license renewal review. Breakout sessions for various technical review areas will occur at predesignated time slots during the audit, with preassigned NRC staff and PNPP representatives. NRC staff will provide discussion topics and technical requests and questions to the NRC safety project manager, who will

then relay the information to the PNPP licensing manager. Any information requests transmitted to the applicant will be included in the audit report. All breakout sessions will be coordinated via the NRC safety project manager and the PNPP licensing manager.

Each of the four parts of the Aging Management Audit will provide the staff the opportunity to have technical discussions with the applicant to gain clarity and information regarding the LRA. The audit is coordinated to support the development of the reviewers' reasonable assurance for the safety finding to be documented in the SE. The staff may require additional information from the applicant for some technical areas, while finding that information on the ePortal is sufficient for other technical areas. Accordingly, some technical areas may not require inclusion in Part #3, the On-Site Audit. The License Renewal Projects Branch (NLRP) safety project manager will coordinate all communications with the applicant. The staff requests for communication with the applicant will require approval of their respective technical branch chief and the NLRP branch chief.

5. Information and Other Material Necessary for the Regulatory Audit

Throughout the Aging Management Audit, the staff will review the LRA, as supplemented and revised, the AMP basis documents and other applicant supporting documents as appropriate and requested, which have been uploaded to the ePortal.

The staff may request additional applicant documents to be added to the ePortal during the course of the audit. The staff requests for ePortal additions shall be made, as needed, to the safety project manager, who will provide the requests to the applicant.

All documents used as the basis for the staff's review will be documented in the audit report.

6. Team Members

Team Member	Branch/Division
Vaughn Thomas	License Renewal Projects Branch (NLRP)/Division of New and Renewed Licenses (DNRL)
Lauren Gibson	NLRP/DNRL
Christopher Tyree	NLRP/DNRL
Austin Im	NLRP/DNRL
Andrew Siwy	NLRP/DNRL
John Wise	DNRL
Steven Bloom	Corrosion and Steam Generator Branch (NCSG)/DNRL
Andrew Johnson	NCSG/DNRL
Brian Allik	NCSG/DNRL
Gregory Makar	NCSG/DNRL
Joel Jenkins	NCSG/DNRL
Leslie Terry	NCSG/DNRL
Lydiana Alvarado Guilloty	NCSG/DNRL
Matthew Yoder	NCSG/DNRL
Paul Klein	NCSG/DNRL
Reena Boruk	NCSG/DNRL
Tony Gardner	NCSG/DNRL

James Gavula	NCSG/DNRL
Matthew Mitchell	Piping and Head Penetrations Branch (NPHP)/DNRL
Ali Rezai	NPHP/DNRL
Bart Fu	NPHP/DNRL
Varoujan Kalikian	NPHP/DNRL
Seung Min	NPHP/DNRL
Jay Collins	NPHP/DNRL
Angela Buford	Vessels and Internals Branch (NVIB)/DNRL
Carol Moyer	NVIB/DNRL
Carolyn Fairbanks	NVIB/DNRL
Cory Parker	NVIB/DNRL
David Dijamco	NVIB/DNRL
Emma Haywood	NVIB/DNRL
James Medoff	NVIB/DNRL
Steven Levitus	NVIB/DNRL
Michael Benson	NVIB/DNRL
On Yee	NVIB/DNRL
Wendell Morton	Electrical Engineering Branch (EEEEB)/Division of Engineering and External Hazards (DEX)
Adakou Foli	EEEEB/DEX
Jason Paige	Long Term Operations and Modernization Branch (ELTB)/DEX
Liliana Ramadan	ELTB/DEX
Matthew McConnell	ELTB/DEX
Jorge Cintron-Rivera	ELTB/DEX
Ian Tseng	Structural, Civil, Geotech Engineering Branch (ESEB)/DEX
George Wang	ESEB/DEX
Zuhan Xi	ESEB/DEX
Ata Istar	ESEB/DEX
Andrew Prinaris	ESEB/DEX
Shao Lai	ESEB/DEX
Amit Ghosh	ESEB/DEX
Luisette Candelario-Quintana	ESEB/DEX
Dan Hoang	ESEB/DEX
Jen Whitman	PRA Licensing B (APLB)/Division of Risk Assessment (DRA)
Naeem Iqbal	APLB/DRA
Thinh Dinh	APLB/DRA
Brian Wittick	Containment and Plant Systems (SCPB)/Division of Safety Systems (DSS)
Brian Lee	SCPB/DSS
David Nold	SCPB/DSS
Gordon Curran	SCPB/DSS
Phillip Sahd	Nuclear Systems Performance Branch (SNSB)/DSS
Santosh Bhatt	SNSB/DSS
Fred Forsaty	SNSB/DSS

7. Logistics

The Aging Management Audit will be conducted primarily via electronic means. Entrance and exit briefings will be held at the beginning and end of each audit.

On-Site Audits will be done at PNPP and portions of the audit shall be done with electronic means, as needed, to allow NRC staff to participate remotely. The Audits schedules, which were coordinated with the NRC staff and the applicant are follows:

In-Office Operating Experience Audit: September 25, 2023 – October 6, 2023

On-Site Scoping and Screening Audit: October 10-16, 2023

On-Site Audit: October 23-27, 2023

In-Office Breakout Sessions: November 10, 2023 – December 15, 2023

These dates may be adjusted if necessary. If so, the NRC staff and the applicant will coordinate on the revised schedule.

8. Special Requests

The NRC staff requests the applicant to make available the LRA program basis documentation and drawings, and other documents as requested.

9. Deliverables

An audit report should be issued to the applicant within 90 days from the end of the Aging Management Audit.