



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

July 19, 2022

ANO Site Vice President  
Arkansas Nuclear One  
Entergy Operations, Inc.  
N-TSB-58  
1448 S.R. 333  
Russellville, AR 72802

SUBJECT: ARKANSAS NUCLEAR ONE, UNIT 2 - ISSUANCE OF AMENDMENT NO. 331  
RE: ADOPTION OF 10 CFR 50.69, "RISK-INFORMED CATEGORIZATION AND  
TREATMENT OF STRUCTURES, SYSTEMS AND COMPONENTS FOR  
NUCLEAR POWER REACTORS" (EPID L-2021-LLA-0106)

Dear Sir or Madam:

The U.S. Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment No. 331 to Renewed Facility Operating License (RFOL) No. NPF-6 for Arkansas Nuclear One, Unit 2 (ANO-2). The amendment consists of changes to the RFOL in response to your application dated May 26, 2021, as supplemented by letters dated March 9, 2022, and May 18, 2022.

The amendment modifies the licensing basis by adding a license condition to allow for the implementation of the provisions of 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 reactors."

A copy of the related Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's monthly *Federal Register* notice.

Sincerely,

**/RA/**

Thomas J. Wengert, Senior Project Manager  
Plant Licensing Branch IV  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-368

Enclosures:

1. Amendment No. 331 to NPF-6
2. Safety Evaluation

cc: Listserv



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

ENTERGY OPERATIONS, INC.

DOCKET NO. 50-368

ARKANSAS NUCLEAR ONE, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 331  
Renewed License No. NPF-6

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Entergy Operations, Inc. (the licensee), dated May 26, 2021, as supplemented by letters dated March 9, 2022, and May 18, 2022, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes as indicated in the attachment to this license amendment, and Renewed Facility Operating License No. NPF-6 is hereby amended to add paragraph 2.H to read as follows:

H. 10 CFR 50.69, Risk-Informed Categorization and Treatment of Structures, Systems and Components for Nuclear Power Reactors

Entergy is approved to implement 10 CFR 50.69 using the processes for categorization of Risk-Informed Safety Class (RISC)-1, RISC-2, RISC-3, and RISC-4 Structures, Systems, and Components (SSCs) using: Probabilistic Risk Assessment (PRA) models to evaluate risk associated with internal events, including internal flooding, and internal fire; the shutdown safety assessment process to assess shutdown risk; the Arkansas Nuclear One, Unit 2 (ANO-2) passive categorization method to assess passive component risk for Class 2 and Class 3 SSCs and their associated supports; the results of the non-PRA evaluations that are based on the IPEEE Screening Assessment for External Hazards updated using the external hazard screening significance process identified in ASME/ANS PRA Standard RA-Sa-2009 for other external hazards except wind-generated missiles and seismic; the tornado safe shutdown equipment list for wind-generated missiles; and the alternative seismic approach as described in the Entergy submittal letter dated May 26, 2021, and all its subsequent associated supplements, as specified in License Amendment No. 331 dated July 19, 2022.

Prior NRC approval, under 10 CFR 50.90, is required for a change to the categorization process specified above (e.g., change from a seismic margins approach to a seismic PRA approach).

3. This amendment is effective as of its date of issuance and shall be implemented within 60 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Jennifer L. Dixon-Herrity, Chief  
Plant Licensing Branch IV  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to Renewed Facility  
Operating License No. NPF-6

Date of Issuance: July 19, 2022

ATTACHMENT TO LICENSE AMENDMENT NO. 331  
RENEWED FACILITY OPERATING LICENSE NO. NPF-6  
ARKANSAS NUCLEAR ONE, UNIT 2  
DOCKET NO. 50-368

Replace the following pages of Renewed Facility Operating License No. NPF-6 with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Renewed Facility Operating License

REMOVE

-9-  
-10-

INSERT

-9-  
-10-

environmental impact that was not evaluated, or that is significantly greater than that evaluated, in the Final Environmental Statement (NUREG-0254) or any addendum thereto, and other NRC environmental impact assessments, EOI shall provide a written evaluation of such activities and obtain prior approval from the Director, Office of Nuclear Reactor Regulation.

F. Updated Final Safety Analysis Report Supplement

The Final Safety Analysis Report supplement, as revised, shall be included in the next scheduled update to the Final Safety Analysis Report required by 10 CFR 50.71(e)(4) following issuance of this renewed license. Until that update is complete, ANO-2 may make changes to the programs and activities described in the supplement without prior Commission approval, provided that ANO-2 evaluates each such change pursuant to the criteria set forth in 10 CFR 50.59 and otherwise complies with the requirements of that section.

The ANO-2 Final Safety Analysis Report supplement, submitted pursuant to 10 CFR 54.21(d), describes certain future activities to be completed prior to the period of extended operation. ANO-2 shall complete these activities no later than July 17, 2018, and shall notify the NRC in writing when implementation of these activities is complete and can be verified by NRC inspection.

G. Reactor Vessel Material Surveillance Capsules

All capsules in the reactor vessel that are removed and tested must meet the test procedures and reporting requirements of American Society for Testing and Materials (ASTM) E 185-82 to the extent practicable for the configuration of the specimens in the capsule. Any changes to the capsule withdrawal schedule, including spare capsules, must be approved by the NRC prior to implementation. All capsules placed in storage must be maintained for future insertion.

H. 10 CFR 50.69, Risk-Informed Categorization and Treatment of Structures, Systems and Components for Nuclear Power Reactors

Entergy is approved to implement 10 CFR 50.69 using the processes for categorization of Risk-Informed Safety Class (RISC)-1, RISC-2, RISC-3, and RISC-4 Structures, Systems, and Components (SSCs) using: Probabilistic Risk Assessment (PRA) models to evaluate risk associated with internal events, including internal flooding, and internal fire; the shutdown safety assessment process to assess shutdown risk; the Arkansas Nuclear One, Unit 2 (ANO-2) passive categorization method to assess passive component risk for Class 2 and Class 3 SSCs and their associated supports; the results of the non-PRA evaluations that are based on the IPEEE Screening Assessment for External Hazards updated using the external hazard screening significance process identified in ASME/ANS PRA Standard RA-Sa-2009 for other external hazards except wind-generated missiles and seismic; the tornado safe shutdown equipment list for wind-generated missiles; and the alternative seismic approach as described in the Entergy submittal letter dated May 26, 2021, and all its subsequent associated supplements, as specified in License Amendment No. 331 dated July 19, 2022.

Prior NRC approval, under 10 CFR 50.90, is required for a change to the categorization process specified above (e.g., change from a seismic margins approach to a seismic PRA approach).

4. This renewed license is effective as of the date of issuance and shall expire at midnight, July 17, 2038.

FOR THE NUCLEAR REGULATORY COMMISSION

**Original signed by J. E. Dyer**

J. E. Dyer, Director  
Office of Nuclear Reactor Regulation

Attachments:

1. Appendix A - Technical Specifications
2. Preoperational Tests, Startup Tests and other items which must be completed by the indicated Operational Mode

Date of Issuance: June 30, 2005



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 331 TO

RENEWED FACILITY OPERATING LICENSE NO. NPF-6

ENTERGY OPERATIONS, INC.

ARKANSAS NUCLEAR ONE, UNIT 2

DOCKET NO. 50-368

1.0 INTRODUCTION

By application dated May 26, 2021 (Reference 1), as supplemented by letters dated March 9, 2022 (Reference 2), and May 18, 2022 (Reference 3), Entergy Operations, Inc. (Entergy, the licensee) submitted a license amendment request (LAR) for changes to Renewed Facility Operating License No. NPF-6 for Arkansas Nuclear One, Unit 2 (ANO-2).

The proposed amendment would modify the ANO-2 licensing basis by adding a license condition to allow for the implementation of the provisions of 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 reactors." The provisions of 10 CFR 50.69 allow adjustment of the scope of structures, systems, and components (SSCs) subject to the special treatment controls identified in 10 CFR 50.69(b) (e.g., quality assurance, testing, inspection, condition monitoring, assessment, and evaluation). For equipment determined to be of low safety significance (LSS), alternative treatment requirements can be implemented in accordance with this regulation. For equipment determined to be of high safety significance (HSS), requirements will not be changed or will be enhanced. This would allow improved focus on equipment that has higher safety significance resulting in improved plant safety.

The proposed amendment would adopt the methodology described in the U.S. Nuclear Regulatory Commission (NRC, or the Commission)-approved licensing actions related to 10 CFR 50.69. These include the ANO-2 methodology for passive components described in Alternative ANO2-R&R-004 (Reference 4) and/or in Amendment Nos. 249 and 235 for LaSalle County Station, Unit Nos. 1 and 2 (LaSalle, Units 1 and 2), respectively, dated May 27, 2021 (Reference 5).

The licensee's supplemental letters dated March 9, 2022, and May 18, 2022, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the NRC staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on August 10, 2021 (86 FR 43689).

## 2.0 REGULATORY EVALUATION

### 2.1 Applicable Regulations

The provisions of 10 CFR 50.69 allow adjustment of the scope of SSCs subject to special treatment requirements. Special treatment refers to those requirements that provide increased assurance beyond normal industry practices that SSCs perform their design basis functions. For SSCs categorized as LSS, alternative treatment requirements may be implemented in accordance with the regulation. For SSCs determined to be of HSS, requirements may not be changed.

Section 50.69 of 10 CFR contains requirements regarding how a licensee categorizes SSCs using a risk-informed process; adjusts treatment requirements consistent with the relative significance of the SSC; and manages the process over the lifetime of the plant. A risk-informed categorization process is employed to determine the safety significance of SSCs and place the SSCs into one of four risk-informed safety class (RISC) categories.

SSC categorization does not allow for the elimination of SSC functional requirements or allow equipment that is required by the deterministic design basis to be removed from the facility. Instead, 10 CFR 50.69 enables licensees to focus their resources on SSCs that make a significant contribution to plant safety. For SSCs that are categorized as HSS, existing treatment requirements are maintained or potentially enhanced. Conversely, for SSCs categorized as LSS that do not significantly contribute to plant safety on an individual basis, the regulation allows an alternative risk-informed approach to treatment that provides a reasonable level of confidence that these SSCs will satisfy their functional requirements. Implementation of 10 CFR 50.69 allows licensees to improve their focus on equipment that has been categorized as HSS using the requirements in 10 CFR 50.69.

### 2.2 Regulatory Guidance

The NRC staff considered the following regulatory guidance during its review of the proposed changes:

- Regulatory Guide (RG) 1.201, Revision 1, "Guidelines for Categorizing Structures, Systems, and Components in Nuclear Power Plants According to their Safety Significance," dated May 2006 (Reference 6)
- RG 1.200, Revision 2, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," dated May 2009 (Reference 7)
- RG 1.174, Revision 3, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," dated January 2018 (Reference 8)
- NUREG-1855, Revision 1, "Guidance on the Treatment of Uncertainties Associated with PRAs [Probabilistic Risk Assessments] in Risk-Informed Decisionmaking," dated March 2017 (Reference 9)

## NRC-Endorsed Guidance

The Nuclear Energy Institute (NEI) issued NEI 00-04, Revision 0, "10 CFR 50.69 SSC Categorization Guideline," dated July 2005 (Reference 10), as endorsed by RG 1.201 for trial use with clarifications, which describes a process that the NRC staff considers acceptable for complying with 10 CFR 50.69. This process determines the safety significance of SSCs and categorizes them into one of four RISC categories defined in 10 CFR 50.69.

### 3.0 TECHNICAL EVALUATION

#### 3.1 Method of NRC Staff Review

An acceptable approach for making risk-informed decisions about proposed licensing basis (LB) changes, including both permanent and temporary changes, is to show that the proposed LB changes meet the five key principles stated in section C of RG 1.174, Revision 3. These key principles are:

- Principle 1: The proposed LB change meets the current regulations unless it is explicitly related to a requested exemption.
- Principle 2: The proposed LB change is consistent with the defense-in-depth [DID] philosophy.
- Principle 3: The proposed LB change maintains sufficient safety margins.
- Principle 4: When the proposed LB change results in an increase in risk, the increase should be small and consistent with the intent of the Commission's policy statement on safety goals for the operations of nuclear power plants.
- Principle 5: The impact of the proposed LB change should be monitored by using performance measures strategies.

#### 3.2 Traditional Engineering Evaluation

The traditional engineering evaluation below addresses the first three key principles of RG 1.174, Revision 3.

##### 3.2.1 Key Principle 1: LB Change Meets the Current Regulations

In section 3.1, "Categorization Process Description (10 CFR 50.69(b)(2)(i)), of enclosure 1 to the LAR, the licensee stated that it will implement the risk-informed categorization process in accordance with NEI 00-04, Revision 0. In section 3.2.3, "Seismic Hazards," of enclosure 1 to the LAR, the licensee has proposed the use of the of the Electric Power Research Institute (EPRI) "Alternative Approaches for Addressing Seismic Risk in 10 CFR 50.69 Risk-Informed Categorization," Report 3002017583 (Reference 11) Tier 2 seismic categorization as alternative methods to assess the seismic hazard contribution. The NRC notes that use of these alternative methods is a deviation from the NEI 00-04 guidance. A more detailed NRC staff review of the alternative methods is provided in section 3.3.1.2 of this safety evaluation (SE).

The licensee proposed an alternative seismic method in sections 3.1.1 and 3.2.3, referred to as the Alternate Seismic Tier 2 Categorization Process in enclosure 1 to the LAR. The NRC staff notes that the use of these alternative methods is a deviation from the NEI 00-04 guidance. A more detailed review of the alternative methods is provided in section 3.3.1.2 of this SE.

The licensee provided further discussion of specific elements within the 10 CFR 50.69 categorization process that are delineated in NEI 00-04, Revision 0. The regulatory requirements in 10 CFR 50.69 and 10 CFR Part 50, Appendix B, and the monitoring outlined in NEI 00-04, Revision 0, and clarifications in RG 1.201, Revision 1, ensure that the SSC categorization process is sufficient to assure that the SSC functions will continue to be met and that any performance deficiencies will be identified and appropriate corrective actions will be taken. The licensee's SSC categorization program includes the appropriate steps/elements prescribed in NEI 00-04, Revision 0, to assure that SSCs specified are appropriately categorized consistent with 10 CFR 50.69. The NRC staff performed a more detailed review of specific steps/elements of the licensee's SSC categorization process, where necessary, and found it to be consistent with the NEI 00-04 guidance. In light of the above, the NRC staff concludes that the proposed 10 CFR 50.69 program meets the first key principle for risk-informed decision-making prescribed in RG 1.174, Revision 3.

### 3.2.2 Key Principle 2: LB Change is Consistent with the DID Philosophy

In section 3.1.1 of enclosure 1 to the LAR, the licensee clarified that it would require an SSC to be categorized as HSS based on the DID assessment performed in accordance with NEI 00-04, Revision 0. Based on the above, the NRC staff concludes that the proposed change is consistent with the DID philosophy described in Key Principle 2 of RG 1.174, Revision 3, and is, therefore, acceptable. The NRC staff finds that the licensee's process is consistent with the NRC-endorsed guidance in NEI 00-04 and would meet the 10 CFR 50.69(c)(1)(iii) criterion that requires DID to be maintained.

### 3.2.3 Key Principle 3: LB Change Maintains Sufficient Safety Margins

The regulation in 10 CFR 50.69(c)(1)(iv) requires the evaluations to provide reasonable confidence that for SSCs categorized as RISC-3, sufficient safety margins are maintained, and that any potential increases in core damage frequency (CDF) and large early release frequency (LERF) resulting from changes in treatment are small. The engineering evaluation that will be conducted by the licensee under 10 CFR 50.69 for SSC categorization will assess the design function(s) and risk significance of the SSC to assure that sufficient safety margins are maintained. With sufficient safety margins, (1) the codes and standards or their alternatives approved for use by the NRC are met and (2) the safety analysis acceptance criteria in the LB (e.g., Final Safety Analysis Report (FSAR), supporting analyses) are met, or proposed revisions provide sufficient margin to account for uncertainty in the analysis and data.

The SSC design basis functions as described in the plant's LB, including the updated FSAR and technical specifications bases, do not change and should continue to be met. Similarly, there is no impact to safety analysis acceptance criteria as described in the plant LB. On this basis, the NRC staff concludes that the licensee has established a program to ensure sufficient safety margins are maintained in accordance with the third key principle of RG 1.174, Revision 3, and would therefore meet the requirements set forth in 10 CFR 50.69(c)(1)(iv).

### 3.3 Risk-Informed Assessment

#### 3.3.1 Key Principle 4: Change in Risk is Consistent with the Safety Goals

In section 3.1.1 of enclosure 1 to the LAR, the licensee explained that the ANO-2 categorization process uses PRA modeled hazards to assess risks for the internal events (includes internal flood) and internal fires. For the other risk contributors, the licensee's process uses the following non-PRA methods to characterize the risk:

- Seismic Hazard: Tier 2 alternate method provided in EPRI Report 3002017583.
- Non-Seismic External Hazards and Other Hazards: Screening analysis performed for individual plant examination of external events (IPEEE) (Reference 12) updated using criteria from Part 6 of the American Society of Mechanical Engineers/American Nuclear Society (ASME/ANS) RA Sa-2009, Addendum A to RA S-2008, "Standard for Level 1/Large Early Release Frequency Probabilistic Risk Assessment for Nuclear Power Plant Applications" (the ASME/ANS 2009 PRA standard), as endorsed by the NRC (Reference 13).
- Shutdown Events: Safe Shutdown Risk Management program consistent with Nuclear Management and Resources Council (NUMARC) 91-06, "Guidelines for Industry Actions to Assess Shutdown Management" (Reference 14).
- Passive Components: ANO-2 passive categorization methodology.

The approaches and methods proposed by the licensee to address internal events, seismic, non-seismic external events, other hazards, DID, and shutdown events are consistent with the approaches and methods included in the guidance in NEI 00-04, Revision 0. The non-PRA method for the categorization for passive components is consistent with the ANO-2 methodology for passive components approved for risk-informed safety classification and treatment for repair/replacement activities in ASME Boiler and Pressure Vessel Code Class 2 and 3 moderate- and high-energy systems. The use of the ANO-2 methodology in the SSC categorization process is provided in section 3.3.1.2 of this SE. To address seismic hazard in the SSC categorization process, the licensee proposed to use an alternative method not endorsed by the NRC in NEI 00-04. A detailed NRC staff review of the licensee's proposed alternative seismic approach is provided in section 3.3.1.2 of this SE.

##### 3.3.1.1 Scope of the PRA

The ANO-2 PRA is comprised of a full-power, Level 1, internal events PRA (IEPRA) and fire PRA (FPRA), which evaluates the CDF and LERF risk metrics. The licensee discussed in section 3.3 of enclosure 1 to the LAR that the IEPRA (includes internal floods) model has been assessed against RG 1.200, Revision 2. Furthermore, it states that the FPRA has been assessed against RG 1.200, Revision 2.

The NRC staff finds that the information provided in the LAR, as supplemented, is sufficient to support the NRC staff's review of the IEPRA and FPRA for technical acceptability and, therefore, the LAR meets the requirements set forth in 10 CFR 50.69(b)(2)(iii).

### IEPRA Peer-Review History

In section 3.3, "PRA Review Process Results (10 CFR 50.69(b)(2)(iii))," of enclosure 1 to the LAR, the licensee confirmed that the IEPRA model was subjected to a full-scope peer review in July 2008 against RG 1.200, Revision 1, prior to the publication of RG 1.200, Revision 2. The licensee also stated that it had performed a gap assessment to assess the differences between RG 1.200 Revision 2 and RG 1.200, Revision 1. The NRC staff determined that the ANO-2 IEPRA model met the guidance of RG 1.200, Revision 2 in the SE for the Adoption of Technical Specifications Task Force (TSTF) Traveler TSTF-425 in Amendment No. 315 for ANO-2 (Reference 15). Subsequently, in March 2017 a focused-scope review of the internal flooding model was conducted along with an August 2019 focused-scope review of the LERF PRA model. Subsequently, the licensee conducted an independent assessment for closure of the finding-level facts and observations (F&Os) using the NRC-accepted process documented in the NEI letter to the NRC, "Final revision of Appendix X to NEI 05-04/07-12/12-16, 'Close-Out of Facts and Observations,'" dated February 21, 2017 (Reference 16), hereafter referred to as the Appendix X Process, and found that all F&Os were reviewed and closed.

In section 3.2, "Technical Adequacy Evaluation (10 CFR 50.69(b)(2)(ii))," of enclosure 1 to the LAR, the licensee stated in part, with regard to the IEPRA, that "there are no PRA upgrades that have not been peer reviewed." During the audit of the licensee's documentation (Reference 17), the NRC staff reviewed the closure review documents and concluded that the closed F&Os were appropriately assessed by the independent assessment team to assure that no new methods or upgrades were inadvertently incorporated into the IEPRA without a peer review in accordance with the ASME/ANS 2009 PRA standard as endorsed by the NRC.

Therefore, the NRC staff concludes that the ANO-2 IEPRA was appropriately peer reviewed, consistent with RG 1.200, Revision 2, and the F&Os have been adequately dispositioned to assess the impact on the risk-informed application. Based on the above, the NRC staff finds that the ANO-2 10 CFR 50.69 program uses an IEPRA that is of sufficient quality to meet the requirements set forth in 10 CFR 50.69(c)(1)(i).

### Internal FPRA Peer-Review History

The licensee's FPRA was subject to a full-scope industry peer review in June 2009, consistent with RG 1.200, Revision 2. In 2011, 2012, 2014, and 2016, focused-scope peer reviews were performed to address ASME/ANS 2009 PRA standard supporting requirements that were not met at Capability Category-II during the 2012 peer review. Subsequently, the licensee conducted an independent assessment for closure of the finding-level F&Os using the Appendix X Process. All open findings were reviewed and closed using the NRC-accepted process.

In section 3.2 of enclosure 1 to the LAR, for the FPRA, the licensee stated, in part, that "there are no PRA upgrades that have not been peer reviewed." During an audit, the NRC staff reviewed the closure review documents and concluded that the closed F&Os were appropriately assessed by the independent assessment team to assure that no new methods or upgrades were inadvertently incorporated into the FPRA without a peer review in accordance with the ASME/ANS 2009 PRA standard as endorsed by the NRC.

The NRC staff has reviewed the FPRA peer review results and the licensee's resolution of the results and concludes that the ANO-2 FPRA was appropriately peer-reviewed, consistent with RG 1.200, Revision 2, and the F&O's have been adequately dispositioned to assess the impact on the risk-informed application.

#### Appendix X, Independent Assessment Process for F&O Closure

Section X.1.3, "Close Out F&Os by Independent Assessment," of the Appendix X Process provides guidance to perform an independent assessment for the closure of F&O identified from a full-scope or focused-scope peer review.

During the documentation audit, the NRC staff reviewed the closure report and concluded that all of the closed F&Os were appropriately assessed by the independent assessment team to assure that no new methods or upgrades were inadvertently incorporated into the IEPRA and FPRA without a peer review in accordance with the ASME/ANS 2009 PRA standard as endorsed by the NRC. Therefore, the NRC staff finds that the ANO-2 IEPRA and FPRA were appropriately peer reviewed consistent with RG 1.200, Revision 2, and meets the requirements set forth in 10 CFR 50.69(c)(1)(i).

#### Credit for Diverse and Flexible Mitigation Capability (FLEX) Equipment

The NRC memorandum dated May 30, 2017, "Assessment of the Nuclear Energy Institute 16-06, 'Crediting Mitigating Strategies in Risk-Informed Decision Making,' Guidance for Risk-Informed Changes to Plants Licensing Basis" (Reference 18), provides the NRC staff's assessment of challenges to incorporating FLEX equipment and strategies into a PRA model in support of risk-informed decision-making in accordance with the guidance of RG 1.200, Revision 2.

In attachment 6, "Disposition of Key Assumptions/Sources of Uncertainty," of enclosure 1 to the LAR, the licensee stated that the FLEX portable diesel generator (DG) is credited in the ANO-2 FPRA to ensure long term direct current power for Unit 2 extended loss of alternating current power cases as a portable means of power to instrumentation. The licensee performed a sensitivity study to determine the impact of FLEX credit on overall risk values. However, it was unclear to the NRC staff the impact of FLEX uncertainties in the categorization process. In response to Request for Additional Information (RAI) 02 (APLA) in the letter dated March 9, 2022, the licensee provided specifics on how FLEX is modeled in the PRAs to be used in the categorization process. In addition, the licensee provided an updated analysis that demonstrated that only one SSC (associated with FLEX equipment) could have its safety designation adversely impacted from LSS to HSS. In its supplement dated May 18, 2022, the licensee stated that the results of a sensitivity study demonstrating the impact of the FLEX uncertainty on the categorization process will be provided to the integrated decision-making panel (IDP) for its consideration. The NRC staff finds providing the results of the sensitivity study to the IDP for consideration to be consistent with the guidance of NEI 00-04.

With regards to using safety-related DG failure probabilities of the nonsafety FLEX DG, the licensee stated in its response to RAI 02.a(2) and 02.a(5) in the supplement dated March 9, 2022, that the FLEX DG failure rate was equivalent to the non-safety DG failure rate provided in the industry database. However, it was unclear to the NRC staff what failure modes and respective units were referenced since there are failure rates for multiple modes (e.g., fail-to-start, fail-to-run, and fail-to-load).

In its May 18, 2022, supplement, the licensee clarified the referenced failure rates, and stated that the appropriate DG failure rates would be incorporated into the PRA models prior to categorization.

Therefore, the NRC staff concludes that the licensee's treatment of FLEX strategies is acceptable for this application because the FLEX modeling uncertainty was determined not to be a key source for the categorization process.

#### Identification of Key Assumptions and Sources of Uncertainty

In section 3.2. of enclosure 1 to the LAR, the licensee confirmed that sensitivity studies will be performed consistent with section 5 of the NEI 00-04 guidance. In accordance with section 9 of NEI 00-04, the licensee's IDP will use information and risk insights compiled in the initial categorization process, including awareness of the limitations and assumptions of the PRA, and combines that with other information from design bases, DID, and safety margins to finalize the categorization of the SSCs.

In attachment 6 of enclosure 1 to the LAR, the licensee dispositioned sources of uncertainty for the IEPRA and FPRA models and determined that there were no key sources of uncertainty that impacted the categorization process. The NRC staff reviewed the dispositions of these key sources and notes that the licensee will perform appropriate sensitivity studies to assess for impact on the SSC categorization process to ensure that key assumptions and sources of uncertainty do not adversely impact SSC categorization. As stated above regarding the uncertainty for FLEX modeling, the licensee reevaluated this as a key source of uncertainty for this application. Therefore, the NRC staff concludes that the licensee's review and disposition of sources of uncertainty are acceptable for this application.

#### PRA Acceptability Conclusions

Pursuant to 10 CFR 50.69(c)(1)(i), the categorization process must consider results and insights from a plant-specific PRA. The use of the IEPRA and FPRA to support SSC categorization is endorsed by RG 1.201, Revision 1. The PRAs must be acceptable to support the categorization process and must be subjected to a peer-review process assessed against a standard that is endorsed by the NRC staff. Revision 2 of RG 1.200 provides guidance for determining the acceptability of the PRA by comparing the PRA to the relevant parts of the ASME/ANS 2009 PRA standard using a peer-review process.

The licensee has subjected the IEPRA and FPRA to the peer-review processes and submitted the results of the peer review. The NRC staff reviewed the peer-review history (which included the results and findings), the licensee's resolution of peer-review findings, and the identification and disposition of key assumptions and sources of uncertainty. The NRC staff concludes that (1) the licensee's IEPRA and FPRA are acceptable to support the categorization of SSCs using the process endorsed by the NRC staff in RG 1.201, Revision 1, and (2) the key assumptions for the PRAs have been identified consistent with the guidance in RG 1.200, Revision 2 and NUREG-1855, as applicable, and addressed appropriately for this application.

The NRC staff finds that the licensee provided the required information, and that the IEPRA and FPRA models are acceptable, and therefore meet the requirements set forth in 10 CFR 50.69(c)(1)(i) and 10 CFR 50.69(c)(1)(ii).

### 3.3.1.2 Evaluation of the Use of Non-PRA Methods in SSC Categorization

As part of its proposed integrated decision-making process to categorize SSCs according to safety significance, the licensee has proposed to use a non-PRA method to consider seismic hazards. The regulations in 10 CFR 50.69(b)(2)(ii) and 10 CFR 50.69(c)(1)(ii) permit the use of non-PRA methods in a risk-informed categorization process. The NRC staff's review of the methods is discussed below.

#### 3.3.1.2.1 Component Safety Significance Assessment for Passive Components

In section 3.1.2 of enclosure 1 to the LAR, the licensee proposed using a categorization method for passive components not cited in NEI 00-04, Revision 0, or RG 1.201, Revision 1, but which was approved by the NRC for ANO-2. The ANO-2 methodology is a risk-informed safety classification and treatment program for repair/replacement activities for Class 2 and 3 pressure retaining items and their associated supports (exclusive of Class CC and MC items), using a modification of the ASME Code Case N-660, "Risk-Informed Safety Classification for Use in Risk-Informed Repair/Replacement Activities, Section XI, Division 1" (Reference 19). The ANO-2 methodology relies on the conditional core damage and large early release probabilities associated with pipe ruptures. Safety significance is generally measured by the frequency and the consequence of, in this case, pipe ruptures. Treatment requirements (including repair/replacement) only affect the frequency of passive component failure. Categorizing solely based on consequences, which measures the safety significance of the pipe given that it ruptures, is conservative compared to including the rupture frequency in the categorization. The categorization will therefore not be affected by changes in frequency arising from changes to the treatment. Based on this, the NRC staff finds that the use of the repair/replacement methodology is acceptable and appropriate for passive component categorization of Class 2 and 3 SSCs.

In section 3.1.2 of enclosure 1 to the LAR, the licensee stated, in part, that "[t]he passive categorization process is intended to apply the same risk-informed process accepted by the NRC in the ANO 2-R&R-004 relief request for the passive categorization of Class 2, 3, and non-class components." The NRC staff notes that this is consistent with ANO-2-R&R-004, in that Class 1 pressure retaining SSCs in the scope of the system being categorized will be assigned HSS and cannot be changed by the IDP. The NRC staff finds the licensee's proposed approach for passive categorization is acceptable for the 10 CFR 50.69 SSC categorization process.

#### 3.3.1.2.2 Alternative Seismic Approach

The licensee proposed an alternative seismic approach in section 3.2.3 of enclosure 1 to the LAR with clarifying information in its supplement dated March 9, 2022. The licensee's "Tier 2" alternative seismic approach has two important bases: the impact of the seismic risk in categorization due to the high relative contribution of seismic risk to the overall plant risk and the conclusions from the case studies in EPRI Report 3002017583.

In its LAR, the licensee stated that its "basis for the Tier 2 classification and resulting criteria is that consideration of the full range of the seismic hazard produces limited unique insights to the categorization process." The licensee explained that the basis for using the proposed alternative seismic approach is that the special seismic risk evaluation process for the proposed approach can identify the appropriate seismic insights to be considered with the other categorization insights by the IDP for the final HSS determinations.

The licensee stated, in its supplement dated March 9, 2022, that the ANO-2's proposed alternative seismic approach follows the same approach approved for LaSalle, Units 1 and 2, in Amendment Nos. 249 and 235, respectively, dated May 27, 2021, with no deviations, thereby making LaSalle, Units 1 and 2 approach as the precedent for its proposed alternative seismic approach. The licensee further stated that its proposed Tier 2 approach is specified in EPRI Report 3002017583 with the revision markups provided in the LaSalle, Units 1 and 2, LAR supplements dated October 16, 2020 (Reference 20), and January 22, 2021 (Reference 21), which ANO-2 incorporated by reference into its application.

To capture the potential impact of seismic risk in the categorization process the licensee's alternative seismic approach includes both quantitative and qualitative assessments of plant SSC-specific seismic insights and their presentation to the IDP as part of its decision-making. The proposed Tier 2 approach includes focused walkdowns and quantification of PRA importance measures, based on a surrogate sensitivity study for selected SSCs using the licensee's IEPRA. The proposed approach also includes consideration of seismic risk through insights from other plant-specific seismic information.

#### Summary of Case Studies in EPRI Report 3002017583

EPRI Report 3002017583 includes the results from case studies performed to determine the extent and type of unique HSS SSCs from seismic PRAs (SPRAs). The case studies were performed for four plants, designated as plants A through D in the report. Description and evaluation of these case studies were documented in the NRC staff's SE for LaSalle, Units 1 and 2 10 CFR 50.69 approval, which is identified as the precedent for the licensee's proposed alternative seismic approach.

#### Evaluation of the Information Provided for the Proposed Alternative Seismic Approach

In section 3.2.3 of enclosure 1 to the LAR, the licensee provided a description of its proposed Tier 2 alternative seismic approach for considering seismic risk in the categorization process and how the proposed alternative seismic approach would be used in the categorization process. The licensee identified LaSalle, Units 1 and 2, 10 CFR 50.69 approval as the precedent for its proposed alternative seismic approach and stated that its proposed approach followed LaSalle, Units 1 and 2, without deviation. In addition, the licensee based the acceptability of its proposed alternative seismic approach on the conclusions gained from case studies performed in EPRI Report 3002017583 and, therefore, indirectly, on the acceptability of the PRAs used for the case studies.

The information presented in the LAR, as supplemented, as well as that in the EPRI report, taken together, provides sufficient details for the licensee's proposed alternative seismic approach for ANO-2, how the licensee's proposed alternative seismic approach would be used in the categorization process, and the measures for assuring that the quality and level of detail for the licensee's proposed alternative seismic approach are adequate for the categorization of SSCs. Therefore, the NRC staff finds that the requirements in 10 CFR 50.69 (b)(2)(ii) are met for the ANO-2's proposed alternative seismic approach.

The information presented in the LAR, as supplemented, along with the documents that the licensee incorporated by reference in the supplement, provides sufficient description, and basis for acceptability, of the evaluations to be conducted to satisfy 10 CFR 50.69(c)(1)(iv) for the proposed Tier 2 alternative seismic approach.

Consistent with the NRC staff's evaluation and conclusions in LaSalle, Units 1 and 2, 10 CFR 50.69 approval, the NRC staff finds that the requirements in 10 CFR (b)(2)(iv) are met for the proposed alternative seismic approach at ANO-2 as well.

#### Evaluation of Technical Acceptability of the PRAs Used for Case Studies Supporting the Proposed Alternative Seismic Approach

In the LAR, the licensee provided information concerning the case studies, mapping approach, and conclusions on the determination of unique HSS SSCs from the case studies that were used by the licensee to support its proposed alternative seismic approach. The key categorization conclusion from the plants A, C, and D case studies is that the only SSCs identified as HSS in the SPRA that were not also HSS from the IEPRA and/or the FPRA were from unique seismically induced failure modes. The remainder of HSS SSCs from the SPRA are captured by the corresponding IEPRA and/or FPRA or other aspects of the NEI 00-04, Revision 0, categorization process.

The licensee stated that it was using the case study (termed "test case" by the licensee) information in EPRI Report 3002017583. The licensee also incorporated by reference in its application information related to the technical acceptability of the PRAs used, as well as the technical adequacy of certain technical details of the conduct of the case studies, for case study plants A, C, and D (References [10] – [14] and [16] – [18] in the licensee's LAR). The NRC staff reviewed and evaluated the technical acceptability of the PRAs used in the case studies for plants A, C, and D in EPRI Report 3002017583 for this application. The NRC staff also evaluated the peer review process and resolution of peer-review findings, and key assumptions and sources of uncertainty for plants A, C, and D, which were incorporated by reference by the licensee.

Based on the above, the NRC staff finds that the technical acceptability of PRAs used for the case studies for plants A, C, and D in EPRI Report 3002017583, the mapping approach used in those case studies, and the conclusions on the determination of unique HSS SSCs from the case studies in the precedent are applicable to this licensee's proposed plant-specific alternative seismic approach. Therefore, the NRC staff concludes that the PRAs for plants A, C, and D were technically acceptable and applicable for use in the corresponding case studies supporting the licensee's proposed alternative seismic approach and that the mapping of SSCs between the SPRAs, the full-power IEPRA, and, as applicable, the FPRAs for the case studies for plants A, C, and D are applicable to the licensee's proposed alternative seismic approach. The licensee's plant-specific evaluation is technically justifiable to support conclusions on the determination of unique HSS SSCs from SPRAs in case studies for plants A, C, and D in the EPRI Report 3002017583, and applicable to ANO-2 and the licensee's proposed Tier 2 alternative seismic approach.

#### Evaluation of the Criteria for the Proposed Alternative Seismic Approach

In its LAR, the licensee proposed the following criteria for the applicability and use of the proposed alternative seismic approach:

Plants where the GMRS [Ground Motion Response Spectrum] to SSE [Safe Shutdown Earthquake] comparison between 1.0 Hz [hertz] and 10 Hz is greater than in Tier 1 but not high enough to be treated as Tier 3.

“Tier 1” in EPRI Report 3002017583 is defined as:

Plants where the GMRS peak acceleration is at or below approximately 0.2g [acceleration of gravity] or where the GMRS is below or approximately equal to the SSE between 1.0 Hz and 10 Hz.

“Tier 3” in EPRI Report 3002017583 is defined as:

Plants where the GMRS to SSE comparison between 1.0 Hz and 10 Hz is high enough that the NRC required the plant to perform an SPRA to respond to the Fukushima 50.54(f) letter.

As noted above, EPRI Report 3002017583 refers to plants as Tier 2 plants ‘where the GMRS to SSE comparison between 1.0 Hz and 10 Hz is greater than that in Tier 1 but not high enough to be treated as Tier 3.’

The NRC staff evaluated the Tier 2 criteria in the SE of the LaSalle 10 CFR 50.69 amendments dated May 27, 2021. The NRC staff also reviewed the licensee’s LAR and supplemental letters, as well as the NRC staff’s plant-specific evaluation (Reference 22) of the licensee’s responses to NRC’s 10 CFR 50.54(f) letter. Based on its review, and as stated in the SE for the LaSalle amendments, the NRC staff finds that the proposed criteria for the applicability and use of the licensee’s alternative seismic approach is acceptable because the criteria: (1) provide information about any seismic risk that would be unaccounted for in the current plant LB, (2) include exceedance of the plant-specific SSE by the GMRS from the reevaluated hazard which can impact SSCs, (3) include seismic acceleration in the frequency range of 1 to 10 Hz where a wide range of nuclear power plant SSCs are susceptible to seismically induced damage, and (4) exclude plants where the so-called Tier 2 approach would be inappropriate for SSC categorization because the exceedance of the SSE by the GMRS from the reevaluated hazard was high enough that a SPRA was deemed necessary by the NRC.

#### Evaluation of Applicability of Criteria for the Proposed Alternative Seismic Approach to ANO-2

The licensee compared the GMRS from the reevaluated seismic hazard for ANO-2, developed in response to Near-Term Task Force (NTTF) Recommendation 2.1 (Reference 23), against the site’s design basis SSE to demonstrate that ANO-2 meets the criteria for application of the proposed alternative seismic approach. The NRC staff previously evaluated the licensee’s response to the 10 CFR 50.54(f) letter associated with NTTF Recommendation 2.1, in which the licensee submitted its reevaluated seismic hazard. The NRC staff’s previous assessment also included confirmatory analysis of the seismic hazard and concluded that the licensee’s methodology was acceptable and that the GMRS, which was determined using the reevaluated hazard, adequately characterized the site. Since the same reevaluated hazard is used for comparison against the criteria for use of the proposed alternative seismic approach, the NRC staff’s previous assessment on the reevaluated hazard is applicable to this review. The NRC staff finds that the ANO-2 GMRS is above the so-called Tier 1 criteria. Further, the NRC staff’s review confirmed that ANO-2 was not required to perform a seismic PRA as part of the NRC’s post-Fukushima actions.

Section 2.1 of EPRI Report 3002017583 lists the “Tier 3” plants. The EPRI report states that several plants that have received extensions of their SPRA submittal dates are not included in the list in section 2.1 of the EPRI report.

Therefore, the list in section 2.1 of EPRI Report 3002017583 is not comprehensive, and the NRC staff takes no position on the completeness or accuracy of that list; however, the completeness or accuracy of the list in section 2.1 of the EPRI report does not impact the NRC staff's evaluation and conclusion on this application, because the staff's review is specific to ANO-2.

In summary, the NRC staff finds that the licensee's basis for applying the proposed alternative seismic approach to its site is acceptable because the licensee meets the Tier 2 criteria for use of the proposed alternative seismic approach based on its reevaluated hazard.

#### Evaluation of the Implementation of the Proposed Alternative Seismic Approach

The categorization conclusions from the case studies in EPRI Report 3002017583 indicate that seismic-specific failure modes resulted in HSS categorization uniquely from SPRAs. Therefore, such seismic-specific failure modes, such as correlated failures, interaction failures, relay-chatter, and passive component structural failure mode, can influence the categorization process. The licensee discussed the implementation of its proposed Tier 2 alternative seismic approach in its LAR. The NRC staff reviewed this information to evaluate whether the categorization related conclusions from the EPRI report were appropriately included and implemented.

The proposed alternative seismic approach includes a combination of qualitative and quantitative considerations of the mitigation capabilities as well as seismic failure modes of SSCs in the categorization process. These considerations are based on plant-specific walkdowns for the SSCs undergoing categorization, quantification of the impact of seismic failure of SSCs subject to correlated or interaction failures, and insights obtained from prior seismic evaluations performed for ANO-2.

#### Qualitative Evaluation for the Alternative Seismic Approach

The licensee stated that as part of the categorization team's preparation of the system categorization document (SCD) that is presented to the IDP, a section will be included which summarizes the identified plant specific seismic insights pertinent to the SSC being categorized. The licensee further explained that at several steps of the categorization process, the categorization team will consider the available seismic insights relative to the system being categorized and document their conclusions in the SCD. In addition, the IDP would be provided with the basis for the proposed alternative seismic approach including the seismic hazard for the plant and the criteria for use of the proposed alternative seismic approach.

Section 3.2.3 of enclosure 1 to the LAR included an explicit mention of the categorization evaluation for seismic hazard, which would be performed at either the functional and/or component level using the proposed alternative seismic approach. The licensee explained that the categorization team would review available ANO-2 plant-specific seismic information and other resources to identify plant-specific seismic insights relevant to the SSCs being categorized such as:

- Impact of relay-chatter
- Implications related to potential seismic interactions such as with block walls
- Seismic failures of passive SSCs such as tanks and heat exchangers
- Any known structural or anchorage issues with a particular SSC
- Components that are implicitly part of PRA-modeled functions (including relays)

The licensee stated that, for each system categorized, the categorization team will evaluate correlated seismic failures and seismic interactions between SSCs. The licensee further explained that these insights would provide the IDP a means to consider potential impacts of seismic events in the categorization process. The licensee stated that the IDP could challenge, from a seismic perspective, any candidate LSS recommendation for any SSC if it believed there was basis for doing so, and that any decision by the IDP to downgrade preliminary HSS components to LSS would also consider the applicable seismic insights.

The licensee explained that sources of the insights related to seismic events would be prior plant specific seismic evaluations such as the seismic hazard screening, spent fuel pool assessment, expedited seismic evaluation process as well as the seismic high frequency evaluation performed for NTTF Recommendation 2.1, seismic walkdowns performed for NTTF Recommendation 2.3, and seismic mitigation strategy assessment performed for NTTF Recommendation 4.2.

In section 3.2.3 of enclosure 1 to the LAR, the licensee stated that for SSCs that were uniquely HSS from the FPRA but not HSS from the IEPR, the categorization team would review design-basis functions of the SSC(s) during seismic events or functions credited for mitigation and prevention of severe accidents caused by seismic events. The results of the review would be presented to the IDP as additional qualitative inputs and would be described in the SCD. The licensee further clarified that the discussion with the IDP will focus on SSCs that are uniquely HSS from FPRA because such SSCs may not be categorized as HSS following the integrated importance measure determination.

The NRC staff concludes, based on its review of the qualitative evaluations for seismic risk in the licensee's proposed alternative seismic approach, that: (1) the evaluations will include potentially important seismically induced failure modes, as well as mitigation capabilities of SSCs during seismically induced design basis and severe accident events consistent with the conclusions on the determination of unique HSS SSCs from SPRAs in EPRI Report 3002017583, (2) the licensee will provide system-specific qualitative seismic insights to the IDP for consideration as part of the IDP review process as each system is categorized, (3) the insights will use plant-specific prior seismic evaluations, which, in conjunction with the performance monitoring for the proposed alternative seismic approach, reasonably reflect the current plant configuration, and (4) the qualitative evaluation will complement focused walkdowns and quantitative evaluations identified for the SSCs. Further, the recommendation for categorizing civil structures in the proposed Tier 2 alternative seismic approach provides appropriate consideration of such failures from a seismic event.

#### Focused Walkdowns for the Alternative Seismic Approach

In section 3.2.3 of enclosure 1 to the LAR, the licensee indicated that the proposed alternative seismic approach includes focused walkdowns of SSCs undergoing categorization. The purpose of the walkdowns is to identify, for the SSCs that are being categorized, the conditions for occurrence of correlated failures, failure of more than one SSC due to interactions with other SSCs, and single component failures.

The NRC staff evaluated the focused walkdowns for the proposed alternative seismic approach, as described in the LAR and in EPRI Report 3002017583, including the revision markups in the LaSalle 10 CFR 50.69 LAR supplements dated October 16, 2020, and January 22, 2021, that are incorporated by the ANO-2 licensee in its application.

The licensee identified LaSalle, Units 1 and 2, 10 CFR 50.69 approval as the precedent for its proposed alternative seismic approach and stated that its proposed approach followed that of the precedent without deviation. The NRC staff's review of the LAR, the supplemental letters, and the documents incorporated by reference in the LAR by the ANO-2 licensee, determined that its previous evaluation documented in the LaSalle 10 CFR 50.69 SE dated May 27, 2021, is applicable to ANO-2.

The NRC staff's review of the focused walkdowns in the proposed alternative seismic approach described in the LAR and in EPRI Report 3002017583, including the revision markups in the LaSalle 10 CFR 50.69 LAR supplements that are incorporated by the ANO-2 licensee in its application, finds that:

1. The licensee's focused walkdown in the proposed alternative seismic approach:  
(i) includes consideration of seismically induced correlated and interaction failures that fail more than one SSC as well as single component failures, (ii) includes evaluations of the direct and indirect impacts of seismically induced correlated and interaction failure of an SSC, (iii) these failure modes reflect the insights from the case studies in the EPRI report, and (iv) the modifications to the proposed alternative seismic approach through changes to the EPRI Report 3002017583 appropriately reflect the evaluation of such direct and indirect impacts.
2. The qualification of personnel performing the walkdowns as well as the documentation and retention of the walkdown results is acceptable for the proposed alternative seismic approach. The qualification of personnel performing the walkdowns for the proposed alternative seismic approach is consistent with the state-of-practice for development and peer review of contemporary SPRAs, and the documentation and retention of walkdown information for the proposed alternative seismic approach is consistent with state-of-practice SPRAs and that the guidance in NEI 00-04 will result in appropriate information being presented to the IDP for categorization decisions.
3. The licensee's approach for selecting the screening criterion is consistent with that of state-of-practice SPRAs, and SSCs screened out based on the criterion are not expected to result in HSS components within the 10 CFR 50.69 categorization process.
4. The fragility approaches proposed for development of fragility values in Step 5b of the proposed alternative seismic approach are acceptable for the proposed alternative seismic approach because (i) they represent state-of-practice approaches consistent with those used in contemporary SPRAs reviewed by the NRC staff, and (ii) no unreviewed methods would be used for fragility calculations.
5. The personnel performing fragility evaluations for the proposed alternative seismic approach will have experience or background consistent with state-of-practice SPRAs as well as the guidance in NEI 00-04 on personnel qualifications, and the use of such personnel is, therefore, acceptable for the proposed alternative seismic approach. In addition, the NRC staff review determined that the documentation of the fragility evaluations will be consistent with documentation used for other categorization processes and is therefore, acceptable for the proposed alternative seismic approach.
6. The proposed alternative seismic approach will result in consideration of relays as implicitly modeled components and of insights related to the impact of seismically induced relay-chatter for the function achieved by the SSC during the categorization.

7. The focused walkdowns of SSCs undergoing categorization will identify seismic interaction and correlated failures including those resulting from potential failures of passive components as well as structural and anchorage issues. Further, the NRC staff concludes that insights from available plant-specific seismic reviews will also provide categorization related insights from a seismic failure modes perspective.

#### Quantitative Evaluation for the Alternative Seismic Approach

In the LAR, as supplemented, the licensee explained that SSCs identified as being vulnerable to correlated or interaction failure modes based on the walkdown would be subjected to a quantitative evaluation using the licensee's IEPR to determine the impact of seismic events on the categorization. The quantitative evaluation would be performed through a sensitivity study, termed the surrogate sensitivity, using the licensee's IEPR. The NRC staff noted that further details on the surrogate sensitivity are provided in section 2.3.1 of EPRI Report 3002017583, including the revision markups in the LaSalle 10 CFR 50.69 LAR supplements that are incorporated by this licensee in its application. The surrogate sensitivity would be performed by introducing PRA basic events, termed surrogate events, in the licensee's IEPR at appropriate locations to reflect seismically induced correlated failure or interaction failure of single or multiple SSCs. Subsequently, the modified IEPR with the surrogate events would be quantified for the loss-of-offsite power (LOOP) and small break loss-of-coolant accident (hereafter referred to as small LOCA) initiators and importance measures would be derived. The importance measures for the surrogate events derived from this sensitivity study would be used to identify the SSCs that should be HSS due to seismically correlated failures or seismic interaction related failures. The licensee further stated that the quantitative evaluation to determine the importance of SSCs on a system basis in the proposed alternative seismic approach was detailed in section 2.3.1 of EPRI Report 3002017583.

The NRC staff reviewed the quantitative evaluation for the alternative seismic approach described in the licensee's LAR, as supplemented, and in EPRI Report 3002017583, including the revision markups in the LaSalle 10 CFR 50.69 LAR supplements. The NRC staff's review of the licensee's approach and the documents incorporated by reference by this licensee, determined that its previous evaluation documented in the LaSalle 10 CFR 50.69 SE is applicable to ANO-2.

The NRC staff determined that seismically induced LOOP and small LOCA occurrence frequencies are representative for ANO-2 based on the three SPRAs in the case studies in EPRI Report 3002017583 and the fact that the seismic hazard at the licensee's site is lower than the hazard for those SPRAs. Therefore, the NRC staff concludes that the proposed occurrence frequency for the seismically induced LOOP event of 1.0 per year, the proposed occurrence frequency for the seismically induced small LOCA event of 1.0E-2 per year, and the proposed surrogate event failure probability of 1.0E-4 are acceptable for use in the licensee's alternative seismic approach. Further, the NRC staff determined that the occurrence frequency and failure probability switch in the surrogate sensitivity is acceptable for the licensee's alternative seismic approach because: (1) it is necessary for developing the importance measures for comparison against the corresponding thresholds in NEI 00-04, and (2) it does not alter the basis for the proposed values. Based on its review, the NRC staff finds reasonable confidence that the categorization outcome from the licensee's proposed alternative seismic approach will be comparable to those from SPRAs and is therefore acceptable.

### Conclusions on the Implementation of the Alternative Seismic Approach

Based on its review of the ANO-2's proposed alternative seismic approach, in conjunction with requirements in 10 CFR 50.69 and the corresponding Statement of Consideration (SOC) (69 FR 68007; November 22, 2004), the NRC staff finds that the proposed alternative seismic approach provides reasonable confidence in the evaluations required by 10 CFR 50.69(c)(1)(ii) and (iv) and meets the intent of the SOC because:

1. It includes qualitative consideration of seismic events at several steps of the categorization process including documentation of the information for presentation to the IDP as part of the integrated, systematic process for categorization.
2. It includes focused walkdown(s) which evaluate(s) the direct and indirect impacts of seismically induced correlated failures, interaction failures, and single component failures in a system under categorization.
3. It includes a quantitative evaluation, with justified failure probability and initiating event frequencies, that provides reasonable confidence that the categorization results from the licensee's proposed alternative seismic approach will be similar to those from SPRAs.
4. Personnel performing necessary walkdowns and analyses will have qualifications consistent with the state-of-practice SPRAs and the guidance in NEI 00-04. The documentation of these walkdowns and analyses will be consistent with state-of-practice SPRAs and the guidance in NEI 00-04.
5. The quantitative and qualitative insights presented to the IDP include potentially important seismically induced failure modes as well as mitigation capabilities of SSCs during seismically induced design basis and severe accident events, consistent with the conclusions on the determination of unique HSS SSCs from SPRAs in EPRI Report 3002017583 with the markups provided in the LaSalle 10 CFR 50.69 LAR supplements, which were incorporated by reference by the licensee in this application. The quantification will use the licensee's IEPRAs and the insights will use prior plant specific seismic evaluations. Therefore, in conjunction with performance monitoring for the proposed alternative seismic approach, the proposed alternative seismic approach will reasonably reflect the current plant configuration.
6. It presents system-specific insights and categorization results from a seismic risk perspective to the IDP for consideration as part of the IDP review process, thereby providing the IDP with a means to consider potential impacts of seismic events in the categorization process.
7. It presents the IDP with the basis for the proposed alternative seismic approach including the moderate seismic hazard for the plant and the criteria for use of the proposed alternative seismic approach.

### Evaluation for Performance Monitoring for the Alternative Seismic Approach

In section 3.5, "Feedback and Adjustment Process," of enclosure 1 to the LAR, the licensee stated that its configuration control process ensured that changes to the plant, including a physical change and changes to documents, are evaluated to determine the impact on design bases, licensing documents, programs, procedures, and training.

The NRC staff evaluated the licensee's discussion of its performance monitoring program for the proposed alternative seismic approach to ensure: (1) the continued validity of the plant-specific information that was developed for each SSC that is categorized, (2) that any changes to the plant, including the seismic hazard, are captured and appropriately addressed as part of the 10 CFR 50.69 program, and (3) that the requirements in 10 CFR 50.69(e) were met for the proposed alternative seismic approach.

In section 3.5 of enclosure 1 to the LAR, the licensee stated that its performance monitoring process requires periodic review to assess changes that could impact the categorization results and to provide the IDP with an opportunity to recommend categorization and treatment adjustments due to such changes. The licensee explained that its configuration control program had been updated to have a checklist related to the impact of seismic events on categorization. The licensee identified some of the items in the checklist in section 3.5 of enclosure 1 to the LAR.

The licensee stated that its performance monitoring program required that SCDs could not be approved by the IDP until the panel's comments on issues, including system-specific seismic insights, had been resolved to the satisfaction of the IDP.

The licensee explained that its scheduled periodic reviews would occur no longer than once every two refueling outages and would evaluate new insights resulting from available risk information (i.e., PRA model or other analysis used in the categorization) changes, design changes, operational changes, and SSC performance. If it was determined that these changes have affected the risk information or other elements of the categorization process such that the categorization results are more than minimally affected, then the risk information and the categorization process would be updated. The licensee explained that if a PRA model or other risk information is updated, a review of the SSC categorization would be performed in addition to the periodic review.

The NRC staff recognizes that the seismic hazard at any site could potentially increase such that the categorization process may be impacted from a seismic risk perspective, either solely due to the seismic risk or via the integrated importance measure determination. In this regard, the licensee stated that if the ANO-2 seismic hazard changed at some future time, the licensee would follow its categorization review and adjustment process procedures and would update, as appropriate, the SSC categorization in accordance with 10 CFR 50.69(e). In section 3.2.3 of enclosure 1 to the LAR, the licensee stated that if its categorization review and adjustment process determines that an approach different from the proposed alternative seismic approach is necessary for consideration of seismic risk in its categorization program, it will seek prior NRC approval for use of such an approach consistent with its proposed license condition.

Based on its review, the NRC staff finds that the licensee's configuration control program includes consideration of seismic issues as well as failure modes such as interaction between components and review of seismic loading and seismic dynamic qualification. Further, the licensee's performance monitoring program assesses changes that impact the categorization results and provides the IDP with an opportunity to recommend categorization and treatment adjustments due to such changes. Therefore, the NRC staff finds that the licensee's performance monitoring and configuration control process addresses plant-specific seismic evaluation, thereby ensuring that the corresponding impacts on SSC categorization continues to remain valid and if necessary, are presented to the IDP for consideration of categorization changes.

During its review, the NRC staff noted that the licensee's performance monitoring program for 10 CFR 50.69 has the capability to identify significant changes to the plant risk profile as well as instances in which a RISC-3 or RISC-4 SSC may fail to perform a safety significant function, resulting in an immediate evaluation and review for such instances. Based on its review, the NRC staff finds that the requirements in 10 CFR 50.69(e) are met for the proposed alternative seismic approach.

In summary, the NRC staff determined that: (1) the licensee's programs provide reasonable assurance that the existing seismic capacity of LSS components would not be significantly impacted by alternative treatments permitted by 10 CFR 50.69, and (2) the monitoring and configuration control program ensures that potential degradation of the seismic capacity would be detected and addressed before it significantly impacts the plant risk profile. Therefore, the NRC staff finds reasonable confidence that the licensee's proposed alternative seismic approach is a systematic process for evaluating seismic hazards for their impact on SSC categorization, which meets the requirements in 10 CFR 50.69(c)(2)(iv).

#### Conclusion for the Proposed Alternative Seismic Approach

Based on its review, the NRC staff concludes that the licensee's proposed alternative seismic approach for ANO-2, as described in the licensee's LAR and its supplemental letters, is acceptable for considering seismic risk in the licensee's categorization process under 10 CFR 50.69.

#### 3.3.1.2.3 Non-Seismic External Hazards and Other Hazards

This hazard category includes all non-seismic external hazards such as high winds, external floods, and other hazards. In section 3.2.4, "Other External Hazards," of enclosure 1 to the LAR, the licensee stated, in part, that all other external hazards, except for seismic, were screened from applicability to ANO-2 per a plant-specific evaluation in accordance with Generic Letter 88-20, and updated to use the criteria in ASME/ANS PRA standard RA-Sa-2009.

The licensee stated, in its supplement dated March 9, 2022, that SSCs will be evaluated during categorization of the SSC using guidance in NEI 00-04, figure 5-6 to confirm that the SSC is not credited in screening an external hazard. The licensee stated that ANO-2 will assess the risk from all other external hazards consistent with figure 5-6 of NEI 00-04. The licensee further stated, in the supplement, that "...SSCs important to safety are flood protected either because of their location above the postulated maximum flood level or because they are enclosed in reinforced concrete Seismic Class 1 structures." The licensee provided a list of 22 doors, hatches, and other flood protection features that are credited to allow the external flooding hazard to screen, and that will be considered HSS in accordance with NEI 00-04, figure 5-6.

In summary, the use of the ANO-2 IPEEE results described by the licensee in the LAR, the supplemental letters, and the licensee's assessment of the other external hazards (i.e., high winds, tornadoes, and external floods) is consistent with section 5 of NEI 00-04, Revision 0. The NRC staff concludes that the licensee's treatment of non-seismic external hazards and other hazards is acceptable and meets the requirements of 10 CFR 50.69(c)(1)(ii).

### 3.3.1.3 Key Principle 4 Conclusions

As discussed above, Key Principle 4 states that when the proposed LB change results in an increase in risk, the increase should be small and consistent with the intent of the Commission's Safety Goal Policy Statement.<sup>1</sup> Based on the NRC staff's review for IEPRA (includes internal floods) and FPRA model acceptability, the evaluation of the proposed alternative seismic approach, and the use of non-PRA methods, set forth above, the NRC staff concludes that the proposed change satisfies the fourth key principle for risk-informed decision-making prescribed in RG 1.174, Revision 3.

### 3.3.2 Key Principle 5: Monitor the Impact of the Proposed Change

NEI 00-04, Revision 0, provides guidance that includes programmatic configuration control and a periodic review to ensure that the all aspects of the 10 CFR 50.69 program (i.e., includes traditional engineering analyses) and PRA models used to perform the risk assessment continue to reflect the as-built-as-operated plant, and that plant modifications and updates to the PRA overtime are continually incorporated.

Sections 11 and 12 of NEI 00-04, Revision 0, includes a discussion on periodic review and program documentation and change control. Maintaining change control and periodic review will also maintain confidence that all aspects of the 10 CFR 50.69 program and risk categorization for SSCs, continually reflect the ANO-2 as-built, as-operated plant.

The NRC staff's evaluation of and findings on the licensee's performance monitoring as part of the alternative seismic approach is provided in section 3.3.1.2.2 of this SE.

Based on its review, the NRC staff finds the risk management process described by the licensee in its LAR is consistent with section 12 of NEI 00-04, Revision 0, and consistent with the requirements in 10 CFR 50.69(e). Based on the above, the NRC staff has determined that the proposed change satisfies the fifth key principle for risk-informed decision-making prescribed in RG 1.174, Revision 3.

## 4.0 PROPOSED REVISION TO THE OPERATING LICENSE

The licensee proposed the following amendment to the RFOL for ANO-2. The proposed License Condition 2.H would state:

H. 10 CFR 50.69, Risk-Informed Categorization and Treatment of Structures, Systems and Components for Nuclear Power Reactors

Entergy is approved to implement 10 CFR 50.69 using the processes for categorization of Risk-Informed Safety Class (RISC)-1, RISC-2, RISC-3, and RISC-4 Structures, Systems, and Components (SSCs) using: Probabilistic Risk Assessment (PRA) models to evaluate risk associated with internal events, including internal flooding, and internal fire; the shutdown safety assessment process to assess shutdown risk; the Arkansas Nuclear One, Unit 2 (ANO-2) passive categorization method to

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<sup>1</sup> Commission's Safety Goal Policy Statement, "Safety Goals for the Operations of Nuclear Power Plants; Policy Statement," published in the *Federal Register* on August 4, 1986 (51 FR 28044), as corrected, and republished, on August 21, 1986 (51 FR 30028).

assess passive component risk for Class 2 and Class 3 SSCs and their associated supports; the results of the non-PRA evaluations that are based on the IPEEE Screening Assessment for External Hazards updated using the external hazard screening significance process identified in ASME/ANS PRA Standard RA-Sa-2009 for other external hazards except wind-generated missiles and seismic; the tornado safe shutdown equipment list for wind-generated missiles; and the alternative seismic approach as described in the Entergy submittal letter dated May 26, 2021, and all its subsequent associated supplements, as specified in License Amendment No. 331 dated July 19, 2022.

Prior NRC approval, under 10 CFR 50.90, is required for a change to the categorization process specified above (e.g., change from a seismic margins approach to a seismic PRA approach).

The NRC staff finds that the proposed license condition is acceptable because the license condition adequately implements 10 CFR 50.69 using models, methods, and approaches consistent with the applicable guidance that has previously been endorsed by the NRC.

The NRC staff notes that the guidance for implementing 10 CFR 50.69 provided by the Commission in the *Federal Register* notice dated November 22, 2004,<sup>2</sup> section III.4.10.2, "Section 50.36 Technical Specifications," stated that the 10 CFR 50.69 rule does not include 10 CFR 50.36 in the list of special treatment requirements that may be replaced by the alternative 10 CFR 50.69 requirements for RISC-3 and RISC-4 SSCs when implementing a 10 CFR 50.69 license amendment. As a result, the NRC staff does not consider the technical specifications (including Improved Technical Specifications) and the associated technical requirements manual to be part of the 10 CFR 50.69 rule. Therefore, the licensee must address proposed changes to its TSs separately.

## 5.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Arkansas State official was notified of the proposed issuance of the amendment on May 18, 2022. The State official had no comments.

## 6.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, published in the *Federal Register* on August 10, 2021 (86 FR 43690), and there has been no public comment on such finding. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

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<sup>2</sup> *Federal Register* Notice (69 FR 68008, 68028-68029; November 22, 2004), related to "Risk-Informed Categorization and Treatment of Structures, Systems and Components for Nuclear Power Reactors."

## 7.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) there is reasonable assurance that such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

## 8.0 REFERENCES

- 1 Gaston R., Entergy Operations Inc., letter to U.S. Nuclear Regulatory Commission, "Application to Adopt 10 CFR 50.69, 'Risk-Informed Categorization and Treatment of Structures, Systems, and Components for Nuclear Power Reactors,' Arkansas Nuclear One, Unit 2," dated May 26, 2021 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML21147A264).
- 2 Couture P., Entergy Operations Inc., letter to U.S. Nuclear Regulatory Commission, "Response to the Request for Additional Information Application to Adopt 10 CFR 50.69, 'Risk-informed Categorization and Treatment of Structures, Systems, and Components for Nuclear Power Reactors,' Arkansas Nuclear One, Units 1 and 2," dated March 9, 2022 (ML22068A170).
- 3 Couture, P., Entergy Operations, Inc., letter to U.S. Nuclear Regulatory Commission, "Response to the Second Round of Request for Additional Information Application to Adopt 10 CFR 50.69, 'Risk-informed Categorization and Treatment of Structures, Systems, and Components for Nuclear Power Reactors,' Arkansas Nuclear One, Units 1 and 2," dated May 18, 2022 (ML22138A380).
- 4 Markley, M. T., U.S. Nuclear Regulatory Commission, letter to Entergy Operations, Inc., "Arkansas Nuclear One, Unit 2 - Approval of Request for Alternative ANO2-R&R-004, Revision 1, Request to Use Risk-Informed Safety Classification and Treatment for Repair/Replacement Activities in Class 2 and 3, Moderate and High Energy Systems," dated April 22, 2009 (ML090930246).
- 5 Vaidya, B. K., U.S. Nuclear Regulatory Commission, letter to Rhoades, D. P., Exelon Generation Company, LLC, "LaSalle County Station, Unit Nos 1 and 2 - Issuance of Amendment Nos. 249 and 235 Related to Application to Adopt 10 CFR 50.69, 'Risk-Informed Categorization and Treatment of Structures, Systems, and Components for Nuclear Power Reactors' ," dated May 27, 2021 (ML21082A422).
- 6 U.S. Nuclear Regulatory Commission, "Guidelines for Categorizing Structures, Systems, and Components in Nuclear Power Plants According to their Safety Significance," Regulatory Guide 1.201, Revision 1, dated May 2006 (ML061090627).
- 7 U.S. Nuclear Regulatory Commission, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment for Risk-Informed Activities," Regulatory Guide 1.200, Revision 2, dated March 2009 (ADAMS Accession No. ML090410014).
- 8 U.S. Nuclear Regulatory Commission, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," Regulatory Guide 1.174, Revision 3, dated January 2018 (ML17317A256).
- 9 U.S. Nuclear Regulatory Commission, "Guidance on the Treatment of Uncertainties Associated with PRAs in Risk-Informed Decisionmaking," NUREG-1855, Revision 1, dated March 2017 (ML17062A466).

- 10 Nuclear Energy Institute, "10 CFR 50.69 SSC Categorization Guideline," NEI 00-04, Revision 0, dated July 2005 (ML052910035).
- 11 Electric Power Research Institute, "Alternative Approaches for Addressing Seismic Risk in 10 CFR 50.69 Risk-Informed Categorization," Report 3002017583, dated February 2020 (ML21082A170).
- 12 U.S. Nuclear Regulatory Commission, "Individual Plant Examination of External Events (IPEEEs) for Severe Accident Vulnerabilities - 10 CFR 50.54(f) (Generic Letter 88-20, Supplement 4)," dated June 28, 1991 (ML031150485).
- 13 American Society of Mechanical Engineers (ASME) and American Nuclear Society (ANS), "Addenda to ASME/ANS RA-S-2008, Standard for Level 1/Large Early Release Frequency Probabilistic Risk Assessment for Nuclear Power Plant Applications," PRA Standard ASME/ANS RA-Sa-2009, February 2009, New York, NY (Copyright).
- 14 Nuclear Management and Resources Council, Inc., "Guidelines for Industry Actions to Assess Shutdown Management," NUMARC 91-06, dated December 1991 (ML14365A203).
- 15 Wengert, T. J., U.S. Nuclear Regulatory Commission, letter to Entergy Operations, Inc., "Arkansas Nuclear One, Unit 2 - Issuance of Amendment Re: Adoption of Technical Specifications Task Force (TSTF) Traveler TSTF-425, Revision 3 (EPID L-2018-LLA-0047)," dated April 23, 2019 (ML19063B948), including a Correction Letter dated May 15, 2019 (ML19127A299).
- 16 Anderson, V. K., Nuclear Energy Institute, letter to Rosenberg, S., U.S. Nuclear Regulatory Commission, "Final Revision of Appendix X to NEI 05-04/07-12/12-16, Close-Out of Facts and Observations," dated February 21, 2017 (ML17086A431).
- 17 Wengert, T. J., U.S. Nuclear Regulatory Commission, letter to Entergy Operations, Inc., "Arkansas Nuclear One, Units 1 and 2 - Audit Summary for License Amendment Requests to Adopt 10 CFR 50.69, 'Risk-Informed Categorization and Treatment of Structures, Systems and Components for Nuclear Power Reactors'," dated January 24, 2022 (ML22011A146).
- 18 Reisi-Fard, M., U.S. Nuclear Regulatory Commission, memorandum to Giitter, J. G., U.S. Nuclear Regulatory Commission, "Assessment of the Nuclear Energy Institute 16-06, 'Crediting Mitigating Strategies in Risk-Informed Decision Making,' Guidance for Risk-Informed Changes to Plants Licensing Basis'," dated May 30, 2017 (ML17031A269).
- 19 American Society of Mechanical Engineers, "Risk-Informed Safety Classification for Use in Risk-Informed Repair/Replacement Activities," ASME Code Case N-660, July 2002.
- 20 Murray, D., Exelon Generation Company, LLC, letter to U.S. Nuclear Regulatory Commission, "Response to Request for Additional Information Regarding LaSalle License Amendment Request to Renewed Facility Operating License to Adopt 10 CFR 50.69, Risk-Informed Categorization and Treatment of Structures, Systems and Components," dated October 16, 2020 (ML20290A791).
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- 22 Vega, F. G., U.S. Nuclear Regulatory Commission, letter to Vice President, Operations, Arkansas Nuclear One, "Arkansas Nuclear One Units 1 and 2 - Staff Assessment of Information Provided Pursuant to Title 10 of the Code of Federal Regulations Part 50, Section 50.54(f), Seismic Hazard Reevaluations for Recommendation 2.1 of the Near-Term Task Force," dated December 15, 2015 (ML15344A109).

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Date: July 19, 2022

SUBJECT: ARKANSAS NUCLEAR ONE, UNIT 2 - ISSUANCE OF AMENDMENT NO. 331  
 RE: ADOPTION OF 10 CFR 50.69, "RISK-INFORMED CATEGORIZATION AND  
 TREATMENT OF STRUCTURES, SYSTEMS AND COMPONENTS FOR  
 NUCLEAR POWER REACTORS" (EPID L-2021-LLA-0106)  
 DATED JULY 19, 2022

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