



DANU-ISG-2022-09

Advanced Reactor Content of Application Project

**“Risk-Informed, Performance-Based Fire Protection Program
(for Operations)”**

Draft Interim Staff Guidance

May 2023

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DRAFT INTERIM STAFF GUIDANCE
ADVANCED REACTOR CONTENT OF APPLICATION PROJECT

“Risk-Informed, Performance-Based Fire Protection Program (for Operations)”

DANU-ISG-2022-09

PURPOSE

The U.S. Nuclear Regulatory Commission (NRC or Commission) staff is providing this interim staff guidance (ISG) for two reasons. First, this ISG provides guidance on the contents of applications to an applicant submitting a risk-informed, performance-based application for a operating license (OL) under Title 10 of the Code of Federal Regulations (10 CFR) Part 50, “Domestic Licensing of Production and Utilization Facilities” (Ref. 1), or for a combined license (COL) under 10 CFR Part 52, “Licenses, Certifications, and Approvals for Nuclear Power Plants” (Ref. 2), for a nonlight-water reactor (non-LWR). The application guidance found in this ISG supports the development of the portion of non-LWR application associated with an applicant’s risk-informed, performance-based fire protection program (for operations).¹ Second, this ISG provides guidance to NRC staff on how to review such an application.

As of the date of this ISG, the NRC is developing a rule to amend 10 CFR Parts 50 and 52 (RIN 3150-AI66). The NRC staff notes this guidance may need to be updated to conform to changes to 10 CFR Parts 50 and 52, if any, adopted through that rulemaking. Further, as of the date of this ISG, the NRC is developing an optional performance-based, technology-inclusive regulatory framework for licensing nuclear power plants designated as 10 CFR Part 53, “Licensing and Regulation of Advanced Nuclear Reactors,” (RIN 3150-AK31). After promulgation of those regulations, the NRC staff anticipates that this guidance will be updated and incorporated into the NRC’s Regulatory Guide (RG) series or a NUREG series document to address content of application considerations specific to the licensing processes in this document.

The scope of this NRC ISG addresses the application content and NRC staff review for the fire protection program for operations, including descriptions of the following:

- management policy and program direction and the responsibilities of those individuals responsible for the program or plan’s implementation
- the integrated combination of procedures and personnel that will implement fire protection program activities

¹ The NRC is issuing this ISG to describe methods that are acceptable to the NRC staff for implementing specific parts of the agency’s regulations, to explain techniques that the NRC staff uses in evaluating specific issues or postulated events, and to describe information that the NRC staff needs in its review of applications for permits and licenses. The guidance in this ISG that pertains to applicants is not NRC regulations and compliance with it is not required. Methods and solutions that differ from those set forth in this ISG are acceptable if supported by a basis for the issuance or continuance of a permit or license by the Commission.

BACKGROUND

This ISG is based on the advanced reactor content of application project (ARCAP), whose purpose is to develop technology-inclusive, risk-informed, and performance-based application guidance. The ARCAP is broader than, and encompasses, the industry-led technology-inclusive content of application project (TICAP). The guidance in this ISG supplements the guidance found in Division of Advanced Reactors and Non-power Production and Utilization Facilities (DANU)-ISG-2022-01, “Review of Risk-Informed, Technology-Inclusive Advanced Reactor Applications – Roadmap,” issued in May 2023 (Ref. 3), which provides a roadmap for developing all portions of an application. The guidance in this ISG is limited to the portion of a non-LWR application associated with the development of a risk-informed, performance-based fire protection program (for operations) for the nuclear reactor plant applicant and the NRC staff review of that portion of the application.

Following approval of the 10 CFR Part 53 final rule, this ISG guidance will be supplemented, as necessary, to provide guidance for developing fire protection for operations content to reflect any differences between current requirements in 10 CFR Parts 50 and 52 and new requirements in 10 CFR Part 53. The 10 CFR Part 53 rulemaking would revise the NRC's regulations by adding a risk-informed, performance-based, technology-inclusive regulatory framework for commercial nuclear reactors, in response to the related requirements of the Nuclear Energy Innovation and Modernization Act (NEIMA; Public Law 115-439), as amended by the Energy Act of 2020. Key documents related to the 10 CFR Part 53 rulemaking, including preliminary and draft proposed rule language and stakeholder comments, can be found at Regulations.gov under Docket ID NRC-2019-0062.

RATIONALE

The current application guidance related to fire protection (for operations) information is directly applicable only to light water reactors (LWRs) and may not fully identify the information to be included in a non-LWR application or efficiently provide a technology-inclusive, risk-informed, and performance-based review approach for non-LWR technologies. This ISG serves as the non-LWR application guidance fire protection (for operations). This ISG provides both applicant content of application and NRC staff review guidance.

APPLICABILITY

This ISG is applicable to applicants for non-LWRs² submitting risk-informed, performance-based applications for an OL under 10 CFR Part 50 or for a COL under 10 CFR Part 52.³ This ISG is also applicable to NRC staff reviewers of these applications.

PAPERWORK REDUCTION ACT

This ISG provides voluntary guidance for implementing the mandatory information collections in 10 CFR Parts 50 and 52 that are subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et. seq.). These information collections were approved by the Office of Management and

² Applicants desiring to use this ISG for a light water reactor application should contact the NRC staff to hold pre-application discussions on their proposed approach.

³ This document does not provide guidance on the licensing requirements for fire protection requirements before receipt of byproduct, source, or special nuclear material under 10 CFR Parts 30, 40, and 70. A CP applicant may address these fire protection licensing requirements with its CP application (in accordance with 10 CFR 50.31, “Combining applications”) or separately from the CP application.

Budget (OMB), approval numbers 3150-0011 and 3150-0151. Send comments regarding this information collection to the FOIA, Library, and Information Collections Branch (T6-A10M), U.S. Nuclear Regulatory Commission, Washington, DC 20555 0001, or by e-mail to Infocollects.Resource@nrc.gov, and to the OMB reviewer at: OMB Office of Information and Regulatory Affairs (3150-0011 and 3150-0151), Attn: Desk Officer for the Nuclear Regulatory Commission, 725 17th Street, NW Washington, DC 20503; e-mail: oir_submission@omb.eop.gov.

PUBLIC PROTECTION NOTIFICATION

The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless the document requesting or requiring the collection displays a currently valid OMB control number.

GUIDANCE

The guidance in this ISG provides one way in which non-LWR applicants and NRC staff reviewers can ensure compliance with NRC regulations. In 10 CFR 50.48, "Fire protection," the NRC requires each holder of an OL issued under 10 CFR Part 50 or COL issued under 10 CFR Part 52 to have a fire protection plan (also referred to in this ISG as a program description) that satisfies General Design Criterion 3, "Fire protection," of Appendix A, "General Design Criteria for Nuclear Power Plants," to 10 CFR Part 50. However, the general design criteria (GDC) of 10 CFR Part 50, Appendix A are considered only guidance for applicants for non-LWRs. These applicants must propose principal design criteria in accordance with 10 CFR 50.34, "Contents of applications; technical information," and 10 CFR 52.79, "Contents of applications; technical information in final safety analysis report."⁴ Both 10 CFR 50.48 and Appendix A to 10 CFR Part 50 refer to structures, systems, and components (SSCs) that are "important-to-safety." In place of this term, this ISG refers to "safety-significant" SSCs to be consistent with terminology used in TICAP and ARCAP reference documents.

The fire protection program description establishes the fire protection policy for safety-significant SSCs at each plant and the procedures, equipment, and personnel required to implement the program at the plant site. This fire protection program description should do the following:

1. Describe the overall fire protection program for the facility.
2. Identify the various positions within the licensee's organization that are responsible for the program.
3. State the authorities that are delegated to each of these positions to implement those responsibilities.

⁴ Guidance for non-LWRs following the licensing modernization project (LMP) process can be found in RG 1.233, "Guidance for a Technology Inclusive Risk Informed, and Performance Based Methodology to Inform the Licensing Basis and Content of Applications for Licensees, Certifications and Approvals for Non Light Water Reactors," (Ref 4). Additional guidance related to PDC for non-LWRs can be found in RG 1.232, "Guidance for Developing Principal Design Criteria for Non-Light-Water Reactors," (Ref. 5), and DG-1404, "Guidance for a Technology-Inclusive Content of Application Methodology to Inform the Licensing Basis and Content of Applications for Licenses, Certifications, and Approvals for Advanced Reactors," (Ref. 6).

4. Outline the plans for fire protection, fire detection and suppression capability, and limitation of fire damage.

The program description should also describe specific features necessary to implement the program such as the following:

1. administrative controls and personnel requirements for fire prevention and manual fire suppression activities
2. the means to limit fire damage to safety-significant SSCs so their capability to perform safety functions is maintained

For operating nuclear power plants, all of which are LWRs, 10 CFR 50.48(c) establishes the requirements for using National Fire Protection Association (NFPA) Standard 805, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants, 2001 Edition," (Ref. 7), as an alternative to the requirements associated with 10 CFR 50.48(b) and 10 CFR Part 50 Appendix R, "Fire Protection Program for Nuclear Power Facilities Operating Prior to January 1, 1979," or the fire protection license conditions for plants licensed after January 1, 1979. This regulation incorporates by reference NFPA 805, with certain exceptions, clarifications, and expansions. In general, the fire protection program operational requirements appear in NFPA 805, Chapter 3, "Fundamental Fire Protection Program and Design Elements."

It is noted that 10 CFR 50.48(c) is not applicable to non-LWRs. However, elements and concepts in NFPA 805 as well as the guidance in RG 1.205, "Risk-Informed, Performance-Based Fire Protection for Existing Light-Water Nuclear Power Plants," Revision 2, issued May 2021 (Ref. 8), and RG 1.189, "Fire Protection for Nuclear Power Plants" Revision 4, issued May 2021 (Ref. 9), can be applied to non-LWRs with justified exceptions or deviations, where appropriate.

This ISG covers operational program aspects of fire protection only. It does not address fire protection system design (except for identification of applicable codes and standards) or the fire hazards analysis within the probabilistic risk assessment (PRA). RG 1.233 addresses a broad set of hazards, including fire, as part of the licensing basis event evaluation, the SSC classification and associated special treatment, and the defense-in-depth adequacy assessment. RG 1.233 endorses with clarifications Nuclear Energy Institute (NEI) 18-04, "Risk-Informed Performance-Based Technology Inclusive Guidance for Non-Light Water Reactor Licensing Basis Development," Revision 1, issued August 2019 (Ref. 10). The fire protection design is informed by the method described in NEI 18-04, Revision 1. Other parts of the ARCAP/TICAP guidance, including DANU-ISG-2022-01, contain the associated guidance on the design of the fire protection system. The analysis of the risk from both internal and external fire hazards is addressed in the guidance for advanced reactor applicants using the LMP process contained in the TICAP DG 1404, which endorses NEI 21-07, Revision 1.

A. Regulatory Basis

The acceptance criteria in this ISG are based on meeting the relevant requirements of the following Commission fire protection regulations and guidance, and industry standards:

1. the applicant's proposed principal design criteria required by regulations in 10 CFR 50.34 and 10 CFR 52.79 that have been deemed acceptable by the NRC, in particular any that correspond to PDC 3 found in RG 1.232
2. 10 CFR 50.48(a), which requires that each operating nuclear power plant have a fire protection plan that meets the requirements of the applicant's proposed principal design criteria that have been deemed acceptable by the NRC, in particular any that correspond to PDC 3 found in RG 1.232

The following regulations, guidance, and industry standards provide useful insights for the development of a fire protection program for non-LWRs.

3. 10 CFR 50.48(c), containing risk-informed, performance-based fire protection program requirements, which incorporates NFPA 805 (2001 Edition) by reference, with certain exceptions allowing licensees to apply for a license amendment to comply with the 2001 Edition of NFPA 805
4. RG 1.189, Revision 4, which provides a comprehensive fire protection guidance document and identifies the scope and depth of fire protection that the NRC staff would consider acceptable for nuclear power plants
5. RG 1.205, Revision 2, which provides NRC guidance on an acceptable approach to meeting 10 CFR 50.48(c)
6. NFPA 804, "Standard for Fire Protection for Advanced Light Water Reactor Electric Generating Plants" (Ref. 11)
 - i. provides useful information when used in conjunction with NRC regulations and guidance – the NRC has not formally endorsed NFPA 804, and some of the information in the NFPA standard may conflict with regulatory requirements which may require an exemption if utilized. Applicants should discuss their use of NFPA 804 with NRC staff during preapplication interactions.
 - ii. provides a deterministic approach to the fire protection program
7. NFPA 805, 2001 Edition
8. NFPA 806, "Performance-Based Standard for Fire Protection for Advanced Nuclear Reactor Electric Generating Plants Change Process" (Ref. 12).
 - i. provides useful information when used in conjunction with NRC regulations and guidance – the NRC has not formally endorsed NFPA 806; however, elements and concepts in this NFPA standard as it relates to the change control process for the fire protection program could be applied to non-LWRs. Applicants considering using the guidance found in NFPA-806 are encouraged to engage

the NRC staff during preapplication discussions.

B. Application Guidance - Fire Protection Program (Administrative Programs during Operations)

The applicant should ensure that the fire protection program described in the application addresses each of the following elements:

1. Applicable industry codes and standards – The fire protection program description should identify what industry codes and standards related to fire protection the applicant used to develop the program and how the program is integrated with the design of the fire protection systems and features. It should justify exceptions to the referenced codes and standards as well as the use of codes and standards that are not endorsed by the NRC. The standards of record related to the design and installation of fire protection systems and features sufficient to satisfy NRC requirements in new reactor designs are those NFPA codes and standards in effect 6 months before the submittal of the application under 10 CFR Part 50 or 10 CFR Part 52.⁵ If the OL or COL application references a design certification (DC), a manufacturing license (ML), or a standard design approval (SDA), the codes and standards of record are governed by the DC, ML, or SDA for aspects of the fire protection program described in the DC/ML/SDA. The COL should use industry codes and standards within 6 months of the COL application date for any aspects of the program not covered in the DC, ML, or SDA.
2. Organization, staffing, and responsibilities – The fire protection program should describe the organizational structure and responsibilities for its establishment and implementation. These responsibilities include program policy; program management (including program development, maintenance, updating, and compliance verification); fire protection staffing and qualifications; engineering and modification; inspection, testing, and maintenance of fire protection systems, features, and equipment; fire prevention; emergency response (e.g., fire brigades and offsite mutual aid); and general employee, operator, and fire brigade training. It should also address the following:
 - i. interfaces with other organizations
 - ii. identification of the various plant positions having the authority for implementing the various areas of the fire protection program
 - iii. identification of Authority Having Jurisdiction (AHJ)Refer to RG 1.189, Regulatory Position C.1.1, and NFPA 805, Section 3.2.2, which contain additional guidance and information, respectively.
3. Fire protection staff training and qualification – The fire protection program should describe the training and qualification for the fire protection staff. This description should be consistent with the guidance in RG 1.189, Regulatory Position C.1.6.1.

⁵ The NRC staff notes that 10 CFR 52.79(a)(41) does not require non-LWR applicants to evaluate the proposed facility against NUREG-0800 in effect 6 months prior to the date of the application. However, as noted above, several NFPA codes and standards could provide useful information in developing a fire protection program for operations. The 6-month time frame prior to the application provides general guidance for the time frame to be used in developing the fire protection program for operations. As noted above, applicants are encouraged to discuss the codes and standards they intend to use to during the preapplication interactions.

The training description should address the following elements:

- i. post-fire procedures and implementation of the recovery actions
 - ii. containment and monitoring of potentially contaminated gaseous and liquid effluents (typically smoke and suppression water)
4. General employee training – The fire protection program should describe the training given to general employees (i.e., not part of the fire protection organization). This description should address the familiarization with plant fire protection procedures, fire event reporting, and plant emergency alarms. RG 1.189 Regulatory Position C.1.6.2 contains guidance in this area, and NFPA 805, Section 3.3.3.1(1) includes additional information.
5. Fire brigade training and qualification – The fire protection program should describe the fire brigade training and qualification program. It should describe the periodic classroom instruction, firefighting practice, and fire drills necessary to establish and maintain the capability to fight credible and challenging fires. RG 1.189, Regulatory Position C.1.6.4 references various NFPA standards that contain acceptable criteria for training. The description should include the qualifications of fire brigade members.
6. Chemical fires – The fire protection program should discuss a training and qualifications program related to the unique features of chemical fires associated with the reactor design. The training program should address the following:
 - i. the chemical and combustion properties of the flammable material(s) of concern
 - ii. the health effects on humans if they come in contact with the material(s) and/or their combustion products
 - iii. other hazards associated with manually fighting chemical fires (e.g., visibility, potential radiation hazard, inert gas pockets, hydrogen generation/burning/explosion)
 - iv. when manual fire-fighting should be attempted
 - v. provisions for the protection of fire-fighting personnel
 - vi. special provisions for manual fire-fighting of chemical fires, such as size and location of the fire, prohibiting the use of water, location, and labeling retardants for use on chemical fires.
7. Fire protection program documentation and changes, configuration control and quality assurance – All analyses related to the program should be documented to demonstrate compliance and made available for audit. The intent of the documentation is that the assumptions be clearly defined and that the results be easily understood, and that sufficient detail be provided to allow future review of the analyses. The expectation is that this documentation should be retained for the life of the plant. Section 2.7.1.2 of NFPA 805 discusses one example of a fire protection program design-basis document.

The fire protection program description in the safety analysis report should address how changes to the program are implemented. All changes to the approved program should be reported to the NRC, along with the final safety analysis report revisions required by 10 CFR 50.71(e). The fire protection program description should detail any fire protection license condition that allows self-approval of certain fire protection program changes. RG 1.189, Regulatory Position C.1.8 provides guidance in this area.

The plant's QA organization should manage the fire protection QA program. This control consists of (1) formulating the fire protection QA program and verifying that it incorporates suitable requirements and is acceptable to the management responsible for fire protection, and (2) verifying the effectiveness of the QA program for fire protection through review, surveillance, and audits. RG 1.189 Regulatory Position C.1.7 provides additional guidance in this area.

8. Verification and validation (V&V) of fire models – The fire protection program description should identify the V&V of fire models. An applicant may propose the use of fire models that have not specifically undergone V&V by the NRC; however, applicants are responsible for providing evidence of acceptable V&V of these fire models. RG 1.189, Regulatory Position C.1.8.7 and RG 1.205 Regulatory Position C.4.2 provide guidance on V&V of fire models.
9. Review of physical plant changes and procedure changes for impact on the fire protection program – The fire protection program description should describe how the plant change process addresses impacts to the fire protection program. A plant change evaluation is a required step in the methodology for all changes to previously approved fire protection program elements. NFPA 805 Section 2.4.4 gives one example of a risk-informed change process.

The change process under a risk-informed, performance-based regulatory framework requires the explicit consideration of risk. The evaluation of risk is limited to the determination of whether an increase has occurred, and if so, whether the increase is within acceptable limits. The applicant should ensure that the fire protection program description in the OL or COL application discusses how the PRA⁶ is used and updated to (1) reflect site- and plant-specific information that may not have been available at the early (e.g., construction permit (CP)) design stage; and (2) evaluate plant changes over the life of the plant using a risk-informed approach. RG 1.189, Regulatory Position C.1.8.1 provides guidance on the change evaluation process. RG 1.205, Regulatory Position C.3.2 provides guidance on the change process in the NFPA 805 context.

10. Inspection, testing, and maintenance for fire protection systems and features credited by the fire protection hazard analysis – The fire protection program description should include the administrative controls regarding the implementation of modifications to fire protection systems and features (e.g., breaching fire barriers or fire stops, impairment of fire detection and suppression systems) and transient fire hazard conditions, such as those associated with maintenance activities. The program should require appropriate compensatory measures, such as fire watches or temporary fire barriers, to ensure adequate fire protection and reactor safety. The maintenance program should include a

⁶ See RG 1.247 (for trial use), "Acceptability of Probabilistic Risk Assessment Results for Non-Light-Water Reactor Risk-Informed Activities," (Ref. 13).

review of performance trends.

11. Monitoring program – The fire protection program description should include a monitoring program to ensure the availability and reliability of the fire protection systems and features, assess the performance of the fire protection program in meeting the performance criteria, and ensure the assumptions in the engineering analyses remain valid. Examples of acceptable monitoring programs include those in the Maintenance Rule (10 CFR 50.65, “Requirements for monitoring the effectiveness of maintenance of nuclear power plants”) and NFPA 805. Plants may choose to use their Maintenance Rule program for their monitoring program. RG 1.205, Regulatory Position 2.2.7 provides guidance on monitoring programs.

The program description should address the following areas:

- i. Program Scope – a description of the plant SSCs and fire equipment that are within the program scope
 - ii. Screening Process – a description of the screening process to be used to determine the appropriate level of monitoring
 - iii. Developing Target Values of Reliability and Availability – a description of the process to be used to determine target values of reliability and availability for the fire protection equipment and other SSCs within the scope of the program
 - iv. Implementation – a description of how the information will be periodically gathered, trended, and evaluated and a description of the periodic assessments performed to determine program effectiveness.
12. Defined strategies for fighting fires – The fire protection program description should include a discussion of the scope and timing of the development of procedures to control actions by the fire brigade and to define firefighting strategies. The program description should address the development of prefire plans. RG 1.189, Regulatory Position C.3.5.1.3 contains additional guidance in this area.
 13. Reporting – The fire protection program description should address reporting requirements. RG 1.189, Regulatory Positions C.1.8.1.5 and C.1.8.5 provide additional guidance in this area.
 14. Control of combustibles, hazardous materials, and ignition sources – The fire protection program description should include administrative controls for fire prevention that address procedures to control handling and use of combustibles, prohibit storage of combustibles in plant areas with safety-significant SSCs, establish designated storage areas with appropriate fire protection, and control use of specific combustibles (e.g., wood) in plant areas where safety-significant SSCs are located. RG 1.189, Regulatory Positions C.2.1 and C.2.2, contain additional guidance in this area.
 15. Housekeeping – The fire protection program description should discuss administrative controls to minimize fire hazards in areas containing safety-significant SSCs. These controls should govern the removal of waste, debris, scrap, oil spills, and other combustibles after completion of a work activity or at the end of the shift. Administrative controls should also include procedures for performing and maintaining periodic

housekeeping inspections to ensure continued compliance with fire protection controls. RG 1.189, Regulatory Position C.2.3, includes additional guidance in this area.

16. Manual firefighting capabilities – The fire protection program description should address the administrative controls and personnel requirements for manual fire suppression activities. Multiple regulatory positions in RG 1.189 address this area. Topics should include the following:
 - i. general manual suppression systems and equipment
 - ii. fire brigade organization and staffing
 - iii. fire brigade equipment
 - iv. fire brigade performance assessment
 - v. offsite manual firefighting resources
 - (1) capabilities
 - (2) training
 - (3) agreements and plant exercises

C. **Staff Review Guidance - Acceptance Criteria**

The NRC staff reviewer should ensure that the application includes sufficient information to understand the applicant's fire protection program. The reviewer should be able to reach and document the applicable safety findings for this topic in the NRC staff's safety evaluation report if the application includes the following areas of emphasis used in combination with those in Section B above.

1. The fire protection program description is in compliance with applicable regulatory positions of RG 1.189 or provide a basis for any deviations.
2. The program description provides clear delineations of organization, staffing, and responsibilities, consistent with RG 1.189.
3. The fire protection program change process identifies changes that require prior NRC review and approval, consistent with RG 1.189.
4. The monitoring program includes bases for failure probability assumptions used in the fire PRA, methods used to monitor availability, reliability, and performance of fire protection systems and features, and processes for identifying and implementing corrective actions.
5. The V&V of fire models is consistent with RG 1.189.
6. The fire protection program QA requirements are consistent with RG 1.189.
7. The fire protection program description adequately addresses the evaluation of compensatory measures for interim use for adequacy and appropriate length of use.

8. Fire protection staff, fire brigade staff, and general employee training for the fire protection program is consistent with items 3, 4, 5, and 6 in Section B of this ISG.
9. For an OL or COL referencing a CP, DC, ML, or SDA, the fire protection program descriptions meet the proposed principal design criteria and any associated permit, license condition, or requirements associated with fire protection.

IMPLEMENTATION

The NRC staff will use the information discussed in this ISG to review non-LWR applications for OLs and COLs under 10 CFR Part 50 and 10 CFR Part 52. The NRC staff intends to incorporate this guidance in updated form in the RG or NUREG series, as appropriate.

BACKFITTING AND ISSUE FINALITY DISCUSSION

The NRC staff may use DANU-ISG-2022-09 as a reference in its regulatory processes, such as licensing, inspection, or enforcement. However, the NRC staff does not intend to use the guidance in this ISG to support NRC staff actions in a manner that would constitute backfitting as that term is defined in 10 CFR 50.109, "Backfitting," and as described in NRC Management Directive 8.4, "Management of Backfitting, Forward Fitting, Issue Finality, and Information Requests" (Ref. 14), nor does the NRC staff intend to use the guidance to affect the issue finality of an approval under 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants." The staff also does not intend to use the guidance to support NRC staff actions in a manner that constitutes forward fitting as that term is defined and described in Management Directive 8.4. If a licensee believes that the NRC is using this ISG in a manner inconsistent with the discussion in this paragraph, then the licensee may file a backfitting or forward fitting appeal with the NRC in accordance with the process in Management Directive 8.4.

CONGRESSIONAL REVIEW ACT

Discussion to be provided in the final ISG.

FINAL RESOLUTION

The NRC staff will transition the information and guidance in this ISG into the RG or NUREG series, as appropriate. Following the transition of all pertinent information and guidance in this document into the RG or NUREG series, or other appropriate guidance, this ISG will be closed.

ACRONYMS

AHJ	Authority Having Jurisdiction
ARCAP	advanced reactor content of application project
CFR	<i>Code of Federal Regulations</i>
COL	combined license
DANU	Division of Advanced Reactors and Non-power Production and Utilization Facilities
DC	design certification
GDC	general design criterion/a
ISG	interim staff guidance
LWR	light-water reactor
ML	manufacturing license

NEI	Nuclear Energy Institute
NFPA	National Fire Protection Association
NRC	U.S. Nuclear Regulatory Commission
OL	operating license
PRA	probabilistic risk assessment
QA	quality assurance
RG	regulatory guide
SMR	small modular reactor
SSC	structure, system, and component
TICAP	technology inclusive content of application project
V&V	verification and validation

REFERENCES

1. Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, “Domestic Licensing of Production and Utilization Facilities.”
2. 10 CFR Part 52, “Licenses, Certifications, and Approvals for Nuclear Power Plants.”
3. U.S. Nuclear Regulatory Commission, DANU-ISG-2022-01, “Review of Risk-Informed, Technology-Inclusive Advanced Reactor Applications – Roadmap,” issued May 2023 (ADAMS Accession No. ML22048A520).
4. U.S. Nuclear Regulatory Commission, Regulatory Guide 1.233, “Guidance for a Technology-Inclusive, Risk-Informed, and Performance-Based Methodology to Inform the Licensing Basis and Content of Applications for Licenses, Certifications, and Approvals for Non-Light-Water Reactors,” Washington, DC
5. U.S. Nuclear Regulatory Commission, Regulatory Guide 1.232, “Guidance for Developing Principal Design Criteria for Non-Light-Water Reactors,” Washington, DC
6. U.S. Nuclear Regulatory Commission, Draft Guide 1404, “Guidance for a Technology-Inclusive Content of Application Methodology to Inform the Licensing Basis and Content of Applications for Licenses, Certifications, and Approvals for Advanced Reactors,” September 2022 (ADAMS Accession No. ML22076A003).
7. National Fire Protection Association, NFPA 805, “Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants,” National Fire Protection Association, Quincy, MA.⁷
8. U.S. Nuclear Regulatory Commission, Regulatory Guide 1.205, “Risk-Informed, Performance-Based Fire Protection for Existing Light-Water Nuclear Power Plants,” Revision 2, May 2021 (ADAMS Accession No. ML21048A448).
9. U.S. Nuclear Regulatory Commission, Regulatory Guide 1.189, “Fire Protection for Nuclear Power Plants,” Revision 4, May 2021 (ADAMS Accession No. ML21048A441).

⁷ Copies of the non-NRC documents included in these references may be obtained directly from the publishing organization.

10. Nuclear Energy Institute, NEI 18-04, "Risk-Informed Performance-Based Technology Inclusive Guidance for Non-Light Water Reactor Licensing Basis Development," Revision 1 (ADAMS Accession No. ML19241A336).
11. National Fire Protection Association, NFPA 804, "Standard for Fire Protection for Advanced Light Water Reactor Electric Generating Plants."
12. National Fire Protection Association, NFPA 806, "Performance-Based Standard for Fire Protection for Advanced Nuclear Reactor Electric Generating Plants Change Process."
13. U.S. Nuclear Regulatory Commission, Regulatory Guide 1.247 (for Trial Use), "Acceptability of Probabilistic Risk Assessment Results for Non-Light-Water Reactor Risk-Informed Activities," (ADAMS Accession No. ML21235A008).
14. U.S. Nuclear Regulatory Commission, Management Directive 8.4, "Management of Backfitting, Forward Fitting, Issue Finality, and Information Requests."