Proposed Rules

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This section of the FEDERAL REGISTER contains notices to the public of the proposed issuance of rules and regulations. The purpose of these notices is to give interested persons an opportunity to participate in the rule making prior to the adoption of the final rules.

NUCLEAR REGULATORY COMMISSION

10 CFR Parts 50, 51, and 71

[NRC–2020–0034]

RIN 3150–AK79

Increased Enrichment of Conventional and Accident Tolerant Fuel Designs for Light-Water Reactors

AGENCY: Nuclear Regulatory Commission.

ACTION: Regulatory basis; request for comment.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) is requesting comments on a regulatory basis to support a rulemaking to amend the NRC's regulations related to the use of conventional and accident tolerant light-water reactor fuel designs. The NRC's goal is to establish effective and efficient licensing of applications using fuels enriched to greater than 5.0 and less than 20.0 weight percent uranium-235. The NRC will hold a public meeting to promote a full understanding of the planned rulemaking and facilitate public comment on the regulatory basis.

DATES: Submit comments by November 22, 2023. Comments received after this date will be considered if it is practical to do so, but the NRC is able to ensure consideration only for comments received on or before this date.

ADDRESSES: You may submit comments by any of the following methods; however, the NRC encourages electronic comment submission through the Federal rulemaking website:

- *Federal rulemaking website:* Go to *https://www.regulations.gov* and search for Docket ID NRC–2020–0034. Address questions about NRC dockets to Dawn Forder; telephone: 301–415–3407; email: *Dawn.Forder@nrc.gov.* For technical questions contact the individuals listed in the **FOR FURTHER INFORMATION CONTACT** section of this document.
- *Email comments to: Rulemaking.Comments@nrc.gov.* If you do not receive an automatic email reply confirming receipt, then contact us at 301–415–1677.
- *Fax comments to:* Secretary, U.S. Nuclear Regulatory Commission at 301–415–1101.
- *Mail comments to:* Secretary, U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001, ATTN: Rulemakings and Adjudications Staff.
- *Hand deliver comments to:* 11555 Rockville Pike, Rockville, Maryland 20852, between 7:30 a.m. and 4:15 p.m. eastern time, Federal workdays; telephone: 301–415–1677.

For additional direction on obtaining information and submitting comments, see ''Obtaining Information and Submitting Comments'' in the **SUPPLEMENTARY INFORMATION** section of this document.

FOR FURTHER INFORMATION CONTACT: Philip Benavides, Office of Nuclear Material Safety and Safeguards, telephone: 301–415–3246, email: *Philip.Benavides@nrc.gov* and Carla Roque-Cruz, Office of Nuclear Reactor Regulation, telephone: 301–415–1455, email: *Carla.Roque-Cruz@nrc.gov.* Both are staff of the U.S. Nuclear Regulatory Commission, Washington, DC 20555–0001.

SUPPLEMENTARY INFORMATION:

I. Obtaining Information and Submitting Comments

A. Obtaining Information

Please refer to Docket ID NRC–2020–0034 when contacting the NRC about the availability of information for this action. You may obtain publicly available information related to this action by any of the following methods:

- *Federal Rulemaking Website:* Go to *https://www.regulations.gov* and search for Docket ID NRC–2020–0034.
- *NRC's Agencywide Documents Access and Management System (ADAMS):* You may obtain publicly available documents online in the ADAMS Public Documents collection at *https://www.nrc.gov/reading-rm/adams.html.* To begin the search, select ''Begin Web-based ADAMS Search.'' For problems with ADAMS, please contact the NRC's Public Document Room (PDR) reference staff at 1–800–397–4209, 301–415–4737, or by email to *PDR.Resource@nrc.gov.* For the convenience of the reader, instructions about obtaining materials referenced in this document are provided in the ''Availability of Documents'' section.
- *NRC's PDR:* You may examine and purchase copies of public documents, by appointment, at the NRC's PDR, Room P1 B35, One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852. To make an appointment to visit the PDR, please send an email to *PDR.Resource@nrc.gov* or call 1–800–397–4209 or 301–415–4737, between 8 a.m. and 4 p.m. eastern time (ET), Monday through Friday, except Federal holidays.

B. Submitting Comments

The NRC encourages electronic comment submission through the Federal rulemaking website (*https://www.regulations.gov*). Please include Docket ID NRC–2020–0034 in your comment submission.

The NRC cautions you not to include identifying or contact information that you do not want to be publicly disclosed in your comment submission. The NRC will post all comment submissions at *https://www.regulations.gov* as well as enter the comment submissions into ADAMS. The NRC does not routinely edit comment submissions to remove identifying or contact information.

If you are requesting or aggregating comments from other persons for submission to the NRC, then you should inform those persons to not include identifying or contact information that they do not want to be publicly disclosed in their comment submission. Your request should state that the NRC does not routinely edit comment submissions to remove such information before making the comment submissions available to the public or entering the comment into ADAMS. Please note that the NRC will not provide formal written responses to each of the comments received on the regulatory basis.

II. Discussion

The NRC is requesting comments on a regulatory basis to support a rulemaking that would amend the NRC's regulations to facilitate the use of light-water reactor fuel containing uranium enriched to greater than 5.0 weight percent uranium-235 (U–235) in part 50 of title 10 of the *Code of Federal Regulations* (10 CFR), ''Domestic Licensing of Production and Utilization Facilities,'' 10 CFR part 51,

''Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions,'' and 10 CFR part 71, ''Packaging and Transportation of Radioactive Material.'' This rulemaking would allow the NRC to prepare for the effective and efficient licensing of applications using fuels enriched to greater than 5.0 and less than 20.0 weight percent U–235 without compromising reasonable assurance of adequate protection of public health and safety, reduce the need for exemptions from existing regulations and license amendment requests, provide licensees operational flexibility and certainty in licensing of accident tolerant fuel, and support the principles of good regulation. The rule changes would apply to any light-water power reactor application submitted to the NRC under 10 CFR part 50 and part 52, ''Licenses, Certifications, and Approvals for Nuclear Power Plants.''

On June 22, 2022, the NRC held a comment gathering public meeting to obtain feedback from external stakeholders on the development of the regulatory basis for this proposed rule. The NRC offered the opportunity for stakeholders to make presentations during this meeting. In addition, the NRC conducted a comment gathering session and provided three topics for discussion: (1) regulations and associated guidance documents that should be evaluated in this rulemaking, (2) regulations that would likely require a licensee to request an exemption if licensees chose to pursue fuel enriched above 5.0 weight percent U–235, and (3) rulemaking schedule and impact on stakeholders. Attendees at this meeting included nongovernmental organizations, licensees, nuclear power industry representatives, and other members of the public. The NRC staff has prepared a regulatory basis to describe and document the results of assessments performed by the NRC staff in support of this proposed rulemaking. This regulatory basis and the meeting summary, including transcript, are available as indicated in the ''Availability of Documents'' section of this document.

The staff determined that the following regulations would be directly or indirectly affected by an increase in fuel enrichment level to greater than 5.0 and less than 20.0 weight percent U–235:

- § 50.67, Accident source term
- § 50.68, Criticality accident requirements
- § 51.51(b), Uranium fuel cycle environmental data—Table S–3
- § 51.52, Environmental effects of transportation of fuel and waste—Table S–4
- § 71.55, General requirements for fissile material packages

In addition to amending the regulations listed, the Commission directed the staff in SRM–SECY–21–0109, ''Staff Requirements—SECY–21–0109—Rulemaking Plan on Use of Increased Enrichment of Conventional and Accident Tolerant Fuel Designs for Light-Water Reactors,'' to appropriately address and analyze fuel fragmentation, relocation, and dispersal (FFRD) issues relevant to fuels of higher enrichment and burnup levels in the regulatory basis.

In the regulatory basis, the NRC staff concludes that there is sufficient basis to proceed with rulemaking and guidance development to address the regulatory issues associated with the use of fuel enriched to greater than 5.0 and less than 20.0 weight percent U–235. However, there are specific regulatory areas that would benefit from additional input from stakeholders before the NRC staff makes a final recommendation to the Commission on rulemaking.

The Commission has not approved any specific recommendation in the regulatory basis at this time, and as such, any conclusions regarding the elements of the increased enrichment of conventional and accident tolerant fuel designs for light-water reactor rulemaking are subject to change.

III. Specific Requests for Comments

General Questions

The NRC is requesting comment on the regulatory basis. As you prepare your comments, consider the following general questions:

1. Is the NRC considering appropriate options for each regulatory area described in the regulatory basis? Please provide a basis for your response.

2. Are there additional factors that the NRC should consider in each regulatory area? What are these factors? Please provide a basis for your response.

3. Are there any additional options that the NRC should consider during development of the proposed rule? Please provide a basis for your response.

4. Is there additional information concerning regulatory impacts that the NRC should include in its regulatory analysis for this rulemaking? Please provide a basis for your response.

5. Discuss whether the proposed rule would present hardships to regulated small entities. How could rule provisions be modified to lessen these impacts? Please provide a basis for your response.

6. What opportunities are there to increase the beneficial impacts of the rule on small entities? Please provide a basis for your response.

Specific Regulatory Issues

In addition to the general questions, the NRC is requesting specific feedback from the public and has prepared specific questions related to control room design criteria; transportation of uranium hexafluoride; and FFRD.

Control Room Design Criteria

The NRC is seeking comment on the alternatives proposed in Appendix A of the regulatory basis on control room design criteria.

1. Would the numerical selection of the control room design criteria be better aligned with regulations designed to limit occupational exposures during emergency conditions (*e.g.,* §§ 20.1206, ''Planned special exposures,'' and 50.54(x)) or regulations designed to limit annual occupational radiation exposures during normal operations (*e.g.,* § 20.1201, ''Occupational dose limits for adults,'' specifically the requirements in § 20.1201 (a)(1)(i))? Please provide a basis for your response.

2. Would a graded, risk-informed method, to demonstrate compliance with a range of acceptable control room design criterion values instead of a single selected value such as the current 5 rem (50 millisievert(mSv)) total effective dose equivalent (TEDE) provide the necessary flexibilities for current and future nuclear technologies up to but less than 20.0 weight percent U–235 enrichment? Please provide a basis for your response.

Transportation of Uranium Hexafluoride

The NRC is seeking comment on the alternatives proposed in Appendix E of the regulatory basis on fissile material package requirements. To date, industry plans communicated to the NRC have not indicated that there will be enough requests for package approvals for transporting UF_6 enriched up to but less than 20.0 weight percent U–235 to conclude that rulemaking would be the most efficient or effective process to support package approvals. Further, all alternatives to rulemaking that the NRC considered are nearly cost neutral in terms of implementation; however, rulemaking shifts the cost burdens to the NRC disproportionally when compared to taking no rulemaking action.

1. Is there additional information that can be shared to augment comments made by the public in June 2022 regarding the need for rulemaking to

support licensing new or existing UF_6 transportation package designs?

Fuel Fragmentation, Relocation, and Dispersal

The NRC staff has identified that additional feedback from stakeholders would be beneficial before making a final recommendation on rulemaking on FFRD. The NRC is seeking comment on the alternatives proposed in Appendix F of the regulatory basis on FFRD.

1. Are there any other alternatives not described in Appendix F of the regulatory basis on FFRD that the NRC should consider? Are there elements of the alternatives presented or other alternatives that the NRC should consider? Please provide a basis for your response.

2. Stakeholders previously expressed concerns on the proposed § 50.46a rule when it was initially proposed in 2010. What concerns about § 50.46a (*i.e.,* Alternative 2) exist in today's landscape? Please provide a basis for your response.

3. Under Alternative 2, as currently proposed in the regulatory basis, the staff would apply the regulatory precedent under which fuel dispersal that would challenge current regulatory requirements would not be permitted under loss-of-coolant accident (LOCA) conditions. Would the increased flexibilities gained from best-estimate assumptions and methods employed during large-break LOCA analyses make this alternative reasonable? Please provide a basis for your response.

4. What changes to plant operations, fuel designs, or safety analysis tools and methods would be necessary under each proposed alternative? Please provide a basis for your response.

5. Provide any information that would be relevant to more accurately estimate costs associated with each proposed alternative. Please provide a basis for your response.

6. What are the pros and cons of each alternative, including the degree to which each alternative is consistent with the principles of good regulation?

IV. Cumulative Effects of Regulation

The cumulative effects of regulation (CER) describe the challenges that licensees or other impacted entities (such as Agreement State agency partners) may face while implementing new regulatory positions, programs, and requirements (*e.g.,* rules, generic letters, backfits, inspections). The CER is an organizational effectiveness challenge that results from a licensee or impacted entity implementing a number of complex positions, programs, or requirements within a limited implementation period and with available resources (which may include limited available expertise to address a specific issue). The NRC has implemented CER enhancements to the rulemaking process to facilitate public involvement throughout the rulemaking process. Therefore, the NRC is specifically requesting comment on the cumulative effects that may result from this proposed rulemaking. In developing comments on the regulatory basis, consider the following questions:

1. In light of any current or projected CER challenges, how should the NRC provide sufficient time to implement the new proposed requirements, including changes to programs and procedures?

2. If CER challenges currently exist or are expected, what should be done to address them? For example, if more time is required for implementation of the new requirements, what period of time is sufficient?

3. What other (NRC or other agency) regulatory actions (*e.g.,* orders, generic communications, license amendment requests inspection findings of a generic nature) influence the implementation of the proposed rule's requirements?

4. What are the unintended consequences, and how should they be addressed?

5. Please comment on the NRC's cost and benefit estimates in the regulatory basis.

V. Plain Writing

The Plain Writing Act of 2010 (Pub. L. 111–274) requires Federal agencies to write documents in a clear, concise, well-organized manner. The NRC has written this document to be consistent with the Plain Writing Act as well as the Presidential Memorandum, ''Plain Language in Government Writing,'' published in the **Federal Register** on June 10, 1998 (63 FR 31885). The NRC requests comment on this document with respect to the clarity and effectiveness of the language used.

VI. Availability of Documents

The documents identified in the following table are available to interested persons through one or more of the methods, as indicated.

Document	ADAMS Accession No./web link/**Federal Register** citation
Rulemaking: Regulatory Basis for Increased Enrichment of Conventional and Accident Tolerant Fuel Designs for Light-Water Reactors, September 5, 2023.	ML23032A504
6/22/2022—Summary of Public Meeting to Discuss the Proposed Rulemaking on Increased Enrichment of Conventional and Accident Tolerant Fuel Designs for Light-Water Reactors, July 1, 2022.	ML22208A001
06/22/2022—Transcript of Public Meeting to Discuss the Proposed Rulemaking onIncreased Enrichment of Conventional and Accident Tolerant Fuel Designs for Light-Water Reactors, June 22, 2022.	ML22201A017
SRM–SECY–21–0109, ''Staff Requirements—SECY–21–0109—Rulemaking Plan on Use of Increased Enrichment of Conventional and Accident Tolerant Fuel Designs for Light-Water Reactors,'' March 16, 2022.	ML22075A103
''Plain Language in Government Writing,'' June 10, 1998	63 FR 31885

The NRC may post additional materials related to this rulemaking activity to the Federal rulemaking website at *https://www.regulations.gov* under Docket ID NRC–2020–0034. These documents will inform the public of the current status of this activity and/or provide additional material for use at future public meetings.

The Federal rulemaking website allows you to receive alerts when changes or additions occur in a docket folder. To subscribe: (1) navigate to the docket folder (NRC–2020–0034); (2) click the ''Subscribe'' link; and (3) enter your email address and click on the ''Subscribe'' link.

Dated: September 5, 2023.

For the Nuclear Regulatory Commission.

Dafna E. Silberfeld,

Acting Director, Division of Rulemaking, Environmental, and Financial Support, Office of Nuclear Material Safety and Safeguards.

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