UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION
OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS
WASHINGTON, DC 20555-0001

Month XX, 2019

NRC FINAL REGULATORY ISSUE SUMMARY 2019-XX
PRE-APPLICATION COMMUNICATION AND SCHEDULING FOR ACCIDENT TOLERANT FUEL SUBMITTALS

ADDRESSEES

All fuel vendors who anticipate submitting accident tolerant fuel (ATF) design applications.

All potential applicants for the fabrication, transportation, and storage of ATF under the provisions of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 70, "Domestic Licensing of Special Nuclear Material," 10 CFR Part 71, "Packaging and Transportation of Radioactive Material," and 10 CFR Part 72, "Licensing Requirements for the Independent Storage of Spent Nuclear Fuel, High-Level Radioactive Waste, and Reactor-Related Greater than Class C Waste."

INTENT

The primary purpose of this regulatory issue summary (RIS) is to help inform the U.S. Nuclear Regulatory Commission's (NRC's) budget and resource planning for the eventual review of ATF-related applications. Specifically, the NRC seeks ATF scheduling information for pre-application activities, topical report submittals, and other licensing submittals from all addressees. Providing current scheduling information in response to this RIS is strictly voluntary. Although the agency requires neither specific action nor written response, this information will allow the NRC to better allocate its resources to support the activities leading up to and including the review of an ATF submittal. The proper allocation of resources promotes the efficient completion of the NRC's review responsibilities.

Additionally, this RIS seeks to promote early and frequent communication between the NRC and addressees, consistent with the NRC's ATF project plan (Agencywide Documents Access and Management System (ADAMS) Accession No. ML18261A412 (package)). Frequent communication between the NRC and addressees promotes the submission of high quality and complete applications.

BACKGROUND INFORMATION

ATF development is a joint effort between the U.S. nuclear industry and the U.S. Department of Energy (DOE) to design and pursue approval of various fuel types with enhanced accident tolerance. The U.S. Congress has provided funding to the DOE to support the development of ATF concepts. In preparing the NRC to review these advanced fuel designs, the agency is conducting advanced planning (via the ATF project plan), reviewing the existing regulatory infrastructure, and identifying needs for additional analysis capabilities.

ATF presents new and unique technical issues that may not be readily addressed with the guidance, review plans, and regulatory criteria for currently utilized fuel (i.e., uranium dioxide pellets clad in zirconium alloys). Given the expected volume of applications for regulatory review, the ATF effort depends on early and frequent communication on experimental testing programs, data collection, and industry schedules to ensure the NRC is appropriately positioned to perform efficient and effective reviews of ATF designs. The NRC will use the information obtained as a result of this RIS for scheduling and resource allocation.

SUMMARY OF ISSUE

The NRC encourages potential applicants to provide the agency with ATF scheduling information for pre-application activities, topical report submittals, and other licensing submittals. This information will allow the NRC to better allocate its resources, both financial and technical expertise, to perform timely and effective reviews of ATF applications.

VOLUNTARY RESPONSE

The NRC staff has developed several questions on the scheduling of ATF activities. The NRC will use addressees' responses to help determine resource allocation and prioritization for ATF applications that will be submitted in upcoming fiscal years.

The NRC may share the application schedules with other Federal agencies to support its planning for the ATF effort. If a prospective applicant deems this information proprietary, a request to withhold information from public disclosure in accordance with 10 CFR 2.390, "Public inspections, exemptions, requests for withholding," must accompany the information. RIS 2004-11, "Supporting Information Associated with Requests for Withholding Proprietary Information," dated June 29, 2004 (ADAMS Accession No. ML041180231), provides additional information about requests for withholding proprietary information from public disclosure. The NRC asks potential applicants to request withholding only for information that is currently treated as proprietary and to provide, where necessary, the proprietary information in designated attachments to their response to this RIS.

If an addressee chooses to provide a voluntary response, the NRC would like to obtain the information within 60 days of the date of this RIS. Respondents should answer the questions below to the best of their ability, providing as much detail as possible.

The NRC staff recognizes that the addressees' ability to respond to these questions depends, in part, on the stage of submittal preparation. In some cases, addressees may not be able to respond to all questions at this time. With this in mind, the staff also encourages voluntary updates to initial responses to this RIS as significant scheduling changes occur.

The NRC seeks voluntary responses to the following questions:

Fuel Vendors

(1) What ATF concepts are you pursuing?

(2) What lead test/lead use assembly campaigns do you plan to conduct or anticipate conducting?

(3) What types of tests (e.g., material characterization, transient, ramp, loss-of-coolant accident, post-irradiation examination, criticality, fission product releases for applicable regulatory source terms) do you plan on conducting for the qualification of your ATF concepts, and what is your current schedule for such testing? When and how do you intend to engage with the NRC on these testing plans? Alternatively, do you intend to submit a draft ATF qualification plan for NRC review? If so, what is your estimated timeframe for completion of the draft qualification plan?

(4) What topical reports or supplements do you plan on submitting to the NRC for review and approval to support ATF? What is your estimated timeframe for submitting those topical reports or supplements?

(5) Do you plan to pursue ATFs with higher burnups than your currently approved values or enrichments greater than five (5) weight percent uranium-235 (U-235)? If so, what is the estimated timeframe for these submittals?

(6) Do you anticipate that your concepts will require rulemaking or an exemption to any regulations under 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," or 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants"?

(7) Do you anticipate that your concepts will require modification of existing NRC guidance or creation of new guidance?

(8) Do you plan to submit a license application or license amendment for the production of ATF on either a lead test/lead use assembly scale or a production scale? If so, what is the estimated timeframe for such submittals? Are there hazards that are not addressed in currently licensed fuel fabrication facilities such as enrichments greater than five (5) weight percent U-235 or new chemical or process hazards?

Fuel Vendors and Transportation/Storage System Certificate Holders

(1) Do you plan to submit an application for an amendment of a certificate of compliance (CoC) or a letter authorization for a transportation package for shipment of fresh (unirradiated) ATF on either a lead test/lead use assembly scale or a larger scale to support fresh fuel reloads? If so, what is the estimated timeframe for such submittals? Will your application discuss new materials (e.g., cladding or fuel material) whose material properties are important for safety performance?

(2) Do you plan to submit an application for an amendment of a CoC of a transportation package for shipment of fresh fuel in pellet and/or powder forms? If so, what is the estimated timeframe for such submittals?

(3) Do you plan to fabricate ATF with enrichments greater than five (5) weight percent U-235 that will necessitate an amendment of a CoC of a transportation package (e.g., for the shipment of uranium hexafluoride (UF_6) or other forms of uranium at an enrichment greater than five (5) weight percent U-235)? If so, what is the estimated timeframe for such submittals?

(4) Do you plan to submit an application for an amendment of a CoC of a transportation package for shipment of spent ATF? Do you plan to submit an application for an

amendment of a CoC of a dry storage system for spent ATF? If so, what is the estimated timeframe for such submittals? Do you expect new materials to be necessary for the fabrication of transportation packages and dry storage systems for use with spent ATF? If so, what are your plans for identifying additional needs (e.g., materials testing) for the fabrication of these designs?

(5) Do you anticipate that your application for an amendment of a CoC of a transportation package or dry storage for fresh/spent ATF will require rulemaking or an exemption to any 10 CFR Part 71 or 10 CFR Part 72 regulations (e.g., maximum enrichment for use of moderator exclusion for UF_6 packages in 10 CFR 71.55(g)(4))?

(6) Do you anticipate the need for modification of existing NRC guidance or the creation of new guidance for the safety review of your application for an amendment of a CoC for a transportation package or dry storage system for fresh/spent ATF?

Addressees that choose to respond to these questions may mail the responses to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001. Additionally, addressees may submit responses electronically in accordance with 10 CFR 50.4, "Written Communications," 10 CFR 70.5, "Communications," 10 CFR 71.1, "Communications and records," and 10 CFR 72.4, "Communications," as appropriate for the submission. Detailed guidance can be found on the NRC's Web site at https://www.nrc.gov/site-help/e-submittals.html.

BACKFITTING AND ISSUE FINALITY DISCUSSION

This RIS requests the addressees to inform the NRC of scheduling information for any planned ATF application submittals. The RIS requires no action or written response. Any action on the part of addressees to submit information in accordance with the request contained in this RIS is strictly voluntary. Therefore, this RIS does not represent backfitting, as defined in 10 CFR 50.109(a)(1), 10 CFR 70.76, and 10 CFR 72.62, nor is it otherwise inconsistent with any issue finality provision in 10 CFR Part 52. Consequently, the NRC staff did not perform a backfit analysis for this RIS or further address the issue finality criteria in 10 CFR Part 52.

FEDERAL REGISTER NOTIFICATION

The NRC did not publish a notice of opportunity for public comment on this RIS in the *Federal Register*, because it pertains to an administrative aspect of the regulatory process that involves the voluntary submission of information on the part of addressees and does not represent a departure from current regulatory requirements.

CONGRESSIONAL REVIEW ACT

This RIS is not a rule as defined in the Congressional Review Act (5 U.S.C. 801–808).

PAPERWORK REDUCTION ACT STATEMENT

This RIS contains voluntary information collections that are subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). The Office of Management and Budget (OMB) approved these information collections (approval number 3150-XXXX, expiration MM/DD/YYYY). The burden to the public for these information collections is estimated to average 120 hours per response. Send comments regarding this information collection to the Information Services

Branch, Office of the Chief Information Officer, Mail Stop: T-6 A10M, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-XXXX) Office of Management and Budget, Washington, DC 20503.

Public Protection Notification

The NRC may not conduct nor sponsor, and a person is not required to respond to, a request for information or an information collection requirement unless the requesting document displays a currently valid OMB control number.

CONTACT

Please direct any questions about this matter to the technical contacts listed below.

Mirela Gavrilas, Director
Division of Safety Systems
Office of Nuclear Reactor Regulation

Andrea L. Kock, Director
Division of Materials Safety, Security
State, and Tribal Programs
Office of Nuclear Material Safety
and Safeguards

Technical Contacts: Phillip Sahd, Engineer
NRR/DSS/SNPB
301-415-2314
E-mail: Phillip.Sahd@nrc.gov

James Hammelman, Engineer
NMSS/FCSE/FMB
301-415-7526
Email: James.Hammelman@nrc.gov

Note: NRC generic communications may be found on the NRC public Web site, http://www.nrc.gov, under NRC Library/Document Collections.