

POLICY ISSUE
(Notation Vote)

April 1, 2016

SECY-16-0040

FOR: The Commissioners

FROM: Victor M. McCree
Executive Director for Operations

SUBJECT: CLOSURE OF PETITION FOR RULEMAKING, C-10 RESEARCH AND
EDUCATION FOUNDATION, INC. (PRM-72-6; NRC-2008-0649)

PURPOSE:

To obtain Commission approval to publish a *Federal Register* notice denying a petition for rulemaking (PRM), PRM-72-6, filed by Ms. Sandra Gavutis, Executive Director of C-10 Research and Education Foundation, Inc. (the petitioner).

BACKGROUND:

Ms. Sandra Gavutis, Executive Director of C-10 Research and Education Foundation, Inc., filed PRM-72-6 on November 24, 2008 (Accession No. ML083470148 in the U.S. Nuclear Regulatory Commission's (NRC) Agencywide Documents Access and Management System (ADAMS)). The petitioner requested that the NRC amend its regulations concerning dry cask safety, security, transferability, and longevity. The petitioner made 12 specific requests. A notice of receipt of the petition was published in the *Federal Register* on March 3, 2009 (74 FR 9178), with the comment period ending on May 18, 2009.

The NRC received over 9,000 comment letters, including comments from industry, the American Society of Mechanical Engineers (ASME), non-governmental organizations, and members of the public. The overwhelming majority of the comment letters received were identical (form) e-mails. The Nuclear Energy Institute and the Strategic Teaming and Resource Sharing organization opposed the petition. All of the form e-mail comments and the comments from ASME and the Berkeley Fellowship of Unitarian Universalists Social Justice Committee supported the petition.

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The comments were summarized in the *Federal Register* on October 16, 2012 (77 FR 63254). The NRC staff discussed its review of the petition and the comments received in SECY-12-0079, "Partial Closure of Petition for Rulemaking (PRM-72-6) C-10 Research and Education Foundation, Inc.," dated June 1, 2012 (ADAMS Accession No. ML12068A090).

In the *Federal Register* notice dated October 16, 2012, the NRC denied 9 of the petitioner's 12 requests (Requests 1, 2, 3, 5-8, 10, and 12), accepted for consideration Request 11 as part of the ongoing independent spent fuel storage installation (ISFSI) security rulemaking effort (RIN 3150-A178; Docket ID NRC-2009-0558), and reserved two requests for future rulemaking determination (Requests 4 and 9).

Regarding Request 11, the staff submitted a recommendation to the Commission in COMSECY-15-0024, "Proposed Rulemaking on Security Requirements for Facilities Storing Spent Nuclear Fuel and High-level Radioactive Waste," dated September 11, 2015 (ADAMS Accession No. ML15230A009), to delay the rulemaking related to ISFSI security requirements. The Commission approved the recommendation in Staff Requirements – COMSECY-15-0024, "Proposed Rulemaking on Security Requirements for Facilities Storing Spent Nuclear Fuel and High-level Radioactive Waste," dated October 6, 2015 (ADAMS Accession No. ML15280A105). The staff reiterated its position to delay the ISFSI security rulemaking effort in SECY-16-0009, "Recommendations Resulting from the Integrated Prioritization and Re-Baselining of Agency Activities" (ADAMS Accession No. ML16028A189) and further stated that staff would address PRM-72-6 through alternative means. Existing security requirements for ISFSIs, together with the additional requirements in the post 9/11 security orders, provide continued high assurance of adequate protection of public health and safety and the common defense and security.

DISCUSSION:

In SECY-12-0079, the NRC staff requested that two remaining requests from the petitioner, Requests 4 and 9, be reserved for future rulemaking determination because the NRC staff was conducting analyses related to spent fuel storage and transportation as part of its ongoing work related to COMSECY-10-0007, "Project Plan for the Regulatory Program Review to Support Extended Storage and Transportation of Spent Nuclear Fuel," dated June 15, 2010 (ADAMS Accession No. ML101390413). The NRC staff has made sufficient progress in these areas and can now resolve the remaining two requests from the petitioner. These two requests are discussed in more detail below and in the enclosed draft *Federal Register* notice (Enclosure 1). The NRC staff has included a detailed discussion of the basis for the final recommendations in the draft *Federal Register* notice.

Request 4:

The petitioner's Request 4 stated: "To require that dry casks are qualified for transport at the time of on-site storage approval certification. Transport capacity for shipment off-site must be required in the event of a future environmental emergency or for matters of security to an alternative storage location or repository and must be part of the approval criteria. 'NRC Chapter 1 of the Standard Review Plan (NUREG-1567) should clearly define Part 72.122(i); 72.236(h); and in 72.236(m).'"

The NRC staff recommends denial of Request 4. As mentioned above, the NRC staff was conducting an ongoing analysis of issues outlined in COMSECY-10-0007. The project plan in

COMSECY-10-0007 included commitments that the NRC staff would evaluate the compatibility of Part 71 of Title 10 of the *Code of Federal Regulations* (10 CFR), “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.” The NRC staff evaluations were to identify (1) areas of overlap where the requirements are substantially similar, (2) areas where the performance requirements are significantly different, (3) specific regulations that must be met for transportation for which there is no similar storage regulation, and (4) recommendations for improving the compatibility and efficiency of the 10 CFR Parts 71 and 72 review processes. The NRC staff was also evaluating the different types of currently-authorized dry cask storage systems to identify any potential unique compatibility issues.

The NRC staff’s consideration of the compatibility of 10 CFR Parts 71 and 72, as part of the NRC staff’s efforts related to COMSECY-10-0007, has informed recent safety evaluation reviews performed by the NRC staff of storage design certifications such as new applications, renewals, etc. Since the petition was received in 2008, the NRC staff has completed the review of 12 storage design applications; information on these reviews can be found at <http://www.nrc.gov/waste/spent-fuel-storage/designs.html>). The NRC staff efforts on this work were factored into the NRC staff’s recommendations in this paper.

The petitioner expressed concern about an environmental emergency or matter of security that would require transport of the spent fuel from storage to an alternative location as a basis for why transportation certification approval should be required at the time of storage certification. By design, dry storage systems are passive systems and are very robust; transport is unlikely to be the best course of action. These systems have been evaluated for several design basis events and are unlikely to experience an unevaluated event. In the case of an environmental emergency or matter of security, the best course of action would likely be to secure the area, contain the spent fuel, assess the situation, and to keep the spent fuel in storage until a more thorough evaluation of the situation has been completed. Moving the spent fuel from storage onto a public highway or rail system represents a much higher risk, from an engineering assessment, than protecting the spent fuel storage casks in place, because it would expose workers or the public to unnecessary doses.

There are numerous interim measures that can be taken to contain the spent fuel and to provide safety, such as restricting access to the area, putting up temporary physical barriers, and using temporary shielding. However, if there is an event that is beyond the design basis of the storage system, the licensee would evaluate the event and its impact on the safety function of the storage system. As an outcome of that evaluation, the licensee may request a license amendment or an exemption under the provisions of 10 CFR 72.7, “Specific exemptions.” If, for some reason, the spent fuel must be moved, the NRC can evaluate applications from the licensee under the provisions of 10 CFR 71.12, “Specific exemptions.”

Finally, the petitioner also stated that “NRC Chapter 1 of the Standard Review Plan (NUREG-1567) should clearly define Part 72.122(i); 72.236(h); and in 72.236(m).” The petitioner did not provide additional information regarding this statement. NUREG-1567 provides guidance to the NRC staff for reviewing applications for specific license approval or renewal for commercial ISFSIs. This request would not result in a rulemaking, but the NRC staff will consider this comment when it works on the next revision of NUREG-1567.

Request 9:

The petitioner's Request 9 stated: "To require a safe and secure hot cell transfer station coupled with an auxiliary pool to be built as part of an upgraded ISFSI design certification and licensing process. The utility must have dry cask transfer capability for maintenance as well as emergency situations after decommissioning for as long as the spent fuel remains on-site. The NRC has to date not approved a dry cask transfer system."

The NRC staff recommends denial of Request 9. The NRC staff has concluded that a hot cell transfer station coupled with an auxiliary pool is not needed, because the requirements currently in place in 10 CFR Part 72 are adequate to ensure safety. The NRC staff has re-confirmed that dry storage systems are robust. This is based on results of ongoing work previously discussed (e.g., work done on COMSECY-10-0007) and on recently completed reviews of renewal applications for spent fuel.

The NRC staff recognized in 2012 that ongoing research into the material properties of high burnup spent fuel could potentially result in a determination that high burnup fuel would require some type of repackaging; therefore, warranting consideration of a regulatory requirement for dry transfer capability. Since the partial consideration of the petition was noticed in October 2012, the NRC staff has made progress on research that provides data related to the behavior of high burnup fuel during storage and transportation.

Two recent studies related to these research activities were completed and published in 2015: (1) NUREG/CR-7198, "Mechanical Fatigue Testing of High-Burnup Fuel for Transportation Applications," published in May 2015 (ADAMS Accession No. ML15139A389); and (2) NUREG/CR-7203, "A Quantitative Impact Assessment of Hypothetical Spent Fuel Reconfiguration in Spent Fuel Storage Casks and Transportation Packages," published in September 2015 (ADAMS Accession No. ML15266A413). Details and conclusions of these studies are provided in the enclosed draft *Federal Register* notice.

Based on the studies documented in NUREG/CR-7198 and NUREG/CR-7203, the NRC staff has further evidence of reasonable assurance of adequate safety related to the mechanical behavior and potential degradation of high burnup fuel during storage and transportation for the systems approved to date. The NRC staff continuously monitors safety and security issues related to the storage of spent fuel, including results from safety inspections and additional studies, if necessary. If licensees or the NRC staff identify any potential safety or security issues, the NRC staff will take action to address the concern. This includes issuing Orders, rulemaking, if needed, or revising guidance to clarify requirements.

Additionally, when an ISFSI license is being evaluated for renewal, the effects of aging of subcomponents are subject to an aging management review. The licensee must establish an Aging Management Program (AMP) that manages the aging effects. The intent of the AMP is to detect, monitor, and mitigate aging effects that could impact the storage of spent fuel.

The NRC also has a defense-in-depth approach to safety that includes (1) requirements to design and operate spent fuel storage systems that minimize the possibility of degradation; (2) requirements to establish competent organizations staffed with experienced, trained, and qualified personnel; and (3) NRC inspections to confirm safety and compliance with requirements. Based on the NRC's current requirements; licensee maintenance and review

programs; and, along with any necessary corrective actions and enforcement based on the results of NRC inspections; the NRC staff is confident that issues will be identified early to allow corrective actions to be taken in a timely fashion.

The enclosed draft *Federal Register* notice includes additional discussion regarding the NRC staff's basis for its recommendation for denying Requests 4 and 9 of the petition. This discussion includes detailed information on specific regulatory requirements, specific examples that further supports the NRC staff recommendations and conclusions.

On May 18, 2015, the NRC staff presented its review and findings to a Petition Review Board (PRB). The NRC staff recommended that the NRC deny Requests 4 and 9 of the petition for the above stated reasons. The PRB unanimously agreed to deny the petitioner's remaining two requests. A draft *Federal Register* notice is provided in Enclosure 1. A letter to the petitioner for signature by the Secretary is provided in Enclosure 2.

RECOMMENDATIONS:

That the Commission:

1. Approve the denial of the Requests 4 and 9 of the petition for rulemaking and publication of the *Federal Register* notice announcing the denial (Enclosure 1);
2. Note that the appropriate congressional committees will be informed; and
3. Note that a letter is attached for the Secretary's signature (Enclosure 2), informing the petitioner of the Commission's decision on the petition.

COORDINATION:

The Office of the General Counsel has no legal objection to the denial of the remaining two issues, Requests 4 and 9 of the petition. The Office of Administration has reviewed and concurred on this paper.

/RA/

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Enclosures:

1. *Federal Register* notice
2. Letter to the petitioner

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