

July 22, 2015

MEMORANDUM TO: Chairman Burns
Commissioner Svinicki
Commissioner Ostendorff
Commissioner Baran

FROM: Catherine Haney, Director **/RA/**
Office of Nuclear Material Safety
and Safeguards

SUBJECT: RETRIEVABILITY OF SPENT FUEL AT DRY STORAGE
INDEPENDENT SPENT FUEL STORAGE INSTALLATIONS

The purpose of this memorandum is to keep the Commission informed of the staff's continuing discussions with stakeholders on spent nuclear fuel retrievability implementation guidance, as currently applied under U.S. Nuclear Regulatory Commission (NRC) requirements.

Section 141(b)(1)(C) of the Nuclear Waste Policy Act (NWP) of 1982, as amended, requires that each monitored retrievable storage (MRS) facility be designed "...to provide for the ready retrieval of such spent fuel and waste for further processing or disposal." The NRC codified this portion of the NWP in its 1988 final rulemaking "Licensing Requirements for the Independent Spent Fuel Storage of Spent Nuclear Fuel and High-Level Radioactive Waste" (53 FR 31651; August 19, 1988) to require that "Storage systems must be designed to allow ready retrieval of spent fuel or high-level radioactive waste for further processing or disposal," in Title 10 of the *Code of Federal Regulations* (10 CFR) 72.122(l) and added MRS facilities to the scope of 10 CFR Part 72. This requirement currently applies to all independent spent fuel storage installation (ISFSI) and MRS licensees.

The NRC's current position on how a licensee or certificate holder may satisfy the requirement for "ready retrieval" under section 72.122(l) is delineated in Interim Staff Guidance (ISG) No. 2, Revision 1 (Agencywide Document Access and Management System Accession No. ML100550861). In essence, ISG 2, Rev. 1 provides guidance that a licensee or certificate holder may demonstrate ready retrieval through a two-part approach: 1) ability to remove the individual spent fuel assemblies or canned assemblies by normal means (i.e., crane and grapple), and 2) ability to move a canister or cask containing spent fuel from the storage location.

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As the duration of spent fuel storage at an ISFSI or MRS facility increases, the practical impact of the application of the first part of ready retrieval - the ability of the fuel assembly to be removed from the canister or cask by normal means - has led the staff to take a closer look at retrievability. To ensure that the application of the first part of "ready retrieval" is met in the renewal period(s), periodic monitoring or inspection may be needed to verify the condition of the fuel and the internal components of the dry storage system and possible remediation. Because of the difficulties in accessing the fuel and the interior components, inspection, monitoring, and potential remediation may involve opening the system in order to verify the condition of the fuel and internal components. However, opening the dry storage system would expose workers to additional dose and, particularly for welded canisters, degrade or eliminate the confinement boundary.

Consistent with the staff's ongoing work conducting a review of the regulatory framework for spent fuel storage and transportation (see COMSECY-10-0007), the staff began exploring alternatives to the guidance on the application of ready retrieval. The staff's review has centered on eliminating the first part of the guidance on ready retrieval - the ability of the fuel assemblies to be removed from a canister or cask by normal means, but maintaining the second part - the ability of the canister or cask to be removed from the storage location. By eliminating the first part of the guidance - the ability to remove the individual spent fuel assemblies or canned assemblies by normal means, the dry cask storage system would still be retrieved safely and be readied for transportation consistent with the law and regulations. This way, the spent fuel dry storage confinement continues to be maintained without the potential negative impacts associated with unnecessarily removing the individual fuel assemblies.

In an effort to engage stakeholders in this discussion, staff held two public meetings on July 27, 2011, and August 16, 2012, to solicit stakeholder feedback on these topics. Additionally, in January 2013, NRC issued a *Federal Register* notice (78 FR 3853) requesting public comment on several topics, including retrievability and cladding integrity. The NRC received 18 sets of comments on the *Federal Register* notice (ML15110A370). Staff work in this area has been delayed until recently due to higher priority work such as license renewal regulatory framework and high burn up fuel related activities. The staff is currently considering these comments and intends to hold additional public meetings in the next few months to discuss the approach and application of retrievability.

The staff has also considered how dry storage of spent nuclear fuel is implemented in other countries, and international guidance for spent fuel storage. Staff has participated in several multilateral working groups related to extended spent fuel storage. Staff reviewed the International Atomic Energy Agency's Specific Safety Guide No. SSG-15, "Storage of Spent Nuclear Fuel." This guide is consistent with the current position of retrievability and will remain consistent with planned changes. Additionally, staff is aware that the spent fuel storage systems in Germany undergo periodic inspections at 10-year intervals which are focused on the accessible cask components and confinement boundary (seals). The aging management program required by 10 CFR Part 72 for renewal will provide a similar level of inspections in the U.S.

As the staff continues to consider the technical issues associated with this potential change, the staff will ensure consistency with the law and regulations, as well as consider impacts that may result from a change in position and guidance. The staff is planning to brief the Advisory Committee on Reactor Safeguards on this topic later this year.

The Commissioners

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The staff will continue to keep the Commission informed through appropriate mechanisms as the staff's work progresses.

cc: SECY
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The Commissioners

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The staff will continue to keep the Commission informed of activities in this area through appropriate mechanisms as the staff's work progresses.

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