

REGULATING STAND-ALONE INDEPENDENT SPENT FUEL STORAGE INSTALLATIONS

The purpose of this summary is to present information on the background and current U.S. Nuclear Regulatory Commission (NRC) staff considerations on this topic. This summary does not represent an official agency position or present an interpretation of the NRC requirements.

The NRC staff is conducting a review of the regulatory framework for spent fuel storage and transportation to identify potential enhancements to the efficiency and effectiveness of its licensing and inspection programs. This review is being conducted as part of the project plan more fully described in COMSECY-10-0007, "Project Plan for the Regulatory Program Review to Support Extended Storage and Transportation of Spent Nuclear Fuel" (Agencywide Documents Access and Management System (ADAMS) Accession No. ML101390216). The staff will solicit stakeholder input in identifying enhancements to the current licensing and inspection programs at the August 16-17, 2012, public meeting, "Meeting to Obtain Stakeholder Feedback on Improvements in the Licensing and Inspection Programs for Spent Fuel Storage and Transportation Under 10 CFR Parts 71 and 72" (<http://www.nrc.gov/waste/spent-fuel-storage/public-involvement.html>). NRC staff will use the information obtained from this meeting, and future opportunities for stakeholder input, to inform the staff in its regulatory review.

BACKGROUND:

The regulations in Title 10 of the *Code of Federal Regulations* (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," provide three categories for Independent Spent Fuel Storage Installation (ISFSI) licensing and certification of cask design:

- (1) Subpart C: A specific license, which allows storage of spent fuel in an Independent Spent Fuel Storage Installation (ISFSI) at any approved location (i.e., at or away from a reactor site), following review and U.S. Nuclear Regulatory Commission (NRC) approval of a specific license application;
- (2) Subpart K: A general license, which allows storage of spent fuel in an ISFSI at power reactor sites to persons authorized to possess or operate nuclear power reactors under 10 CFR Part 50, or 10 CFR Part 52; and
- (3) Subpart L: Certificates of Compliance (CoCs), which are certificates issued by the NRC that approve the design of a spent fuel storage cask.

A general license is subject to both Part 50 and Part 72 requirements. In addition, a general license relies on fuel handling procedures and analysis approved under Part 50. The general license relies on the existing infrastructure associated with reactor operation – including the regulatory infrastructure and programs for criticality safety, physical protection, safeguards, radiation protection, quality assurance, emergency planning, etc., and also the physical infrastructure including structures, systems and components (SSCs) that can be used to handle or protect the spent fuel. In contrast, the specific license application must include a siting evaluation, description of facilities and operational programs, and hazard analyses for these activities.

ISSUE DESCRIPTION:

There are ten ISFSIs at shutdown or decommissioned reactors (stand-alone ISFSIs), including six existing or planned ISFSIs maintained under a general license. At these sites, the 10 CFR Part 50 infrastructure has been largely dismantled, including SSCs that can be used to handle or protect the spent fuel (spent fuel pools and other spent fuel handling equipment related to onsite reactor operations and canister loading activities). Given uncertainty regarding ultimate spent fuel disposition in a geologic repository, the storage period may be longer than initially envisioned, and the associated aging-management or repackaging needs at these sites is uncertain.

The staff is reviewing the current regulatory framework and how it applies to stand-alone ISFSIs, including consideration of the applicability of the general license framework to ISFSIs at sites that no longer have an operating reactor. The staff will consider potential changes to the current regulatory framework to enhance the consistency and completeness of requirements for the use and operation of all ISFSIs (whether under a general or specific license).

This review effort will include examining the regulatory framework governing fuel handling at ISFSIs at shutdown or decommissioned reactor sites (with no spent fuel pool to permit examination or unloading of the storage casks, if needed). The review will also consider recently identified issues regarding the applicability of certain Part 50 power reactor requirements to stand-alone, generally-licensed ISFSIs.

CONSIDERATIONS:

In reviewing the regulatory framework for stand-alone ISFSI sites, the staff will:

1. Review the 10 CFR Part 72 general license requirements, including the underlying assumptions relevant to general licenses.
2. Consider whether any 10 CFR Part 50 requirements should no longer apply to a generally-licensed ISFSI at a site with a shutdown or decommissioned reactor.
3. Consider which SSCs are needed for normal storage activities, or safe recovery from design-basis accident conditions.
4. Consider adding provisions for specific contingency plans for beyond-design-basis events that could occur during storage operations.
5. Review the requirements and guidance for decommissioning of generally-licensed ISFSIs (application of 10 CFR Part 50 and 10 CFR Part 20 decommissioning requirements to ISFSI decommissioning, including financial assurance considerations).
6. Review the Blue Ribbon Commission recommendations (Ref. 1) related to stand-alone ISFSIs to inform the staff review effort.
7. Review recent experience with leaking casks at Peach Bottom that needed to be unloaded (Ref. 2), and at Surry, which had leaking casks that needed to be examined, using the spent fuel pool (Ref. 3). Also consider concerns related to maintaining the spent fuel pool or having dry cask transfer capability, stated in a Petition for Rulemaking (PRM) from C-10 (Ref. 4).

8. Review plans at each stand alone ISFSI (with no spent fuel pool) for repackaging of spent fuel to meet transportation requirements or corrective actions, and for cask unloading or examination to meet aging management plans or address potential leakage.
9. Consider whether the current regulatory framework in 10 CFR Part 50 and 10 CFR Part 72 adequately supports maintaining fuel handling or cask unloading capability.

REFERENCES:

1. Blue Ribbon Commission on America's Nuclear Future, "Report to the Secretary of Energy," January 2012. (<http://www.brc.gov/>)
2. Letter from G. Stathes, Plant Manager, Peach Bottom Atomic Power Station, "Submittal of Independent Spent Fuel Storage Installation (ISFSI) Cask Event Report," December 1, 2010. (Agencywide Documents Access and Management System (ADAMS) Accession No. ML110060275)
3. "NRC Inspection Report No. 72-002/2000-06," August 4, 2000. (ADAMS Accession No. ML003738176)
4. Petition for Rulemaking, submitted by Sandra Gavutis, on Behalf of C-10 Research and Education Foundation, Inc., on PRM 72-6, "Upgrade Interim Dry Cask Storage Code Requirements," November 24, 2008. (ADAMS Accession No. ML083470148)