

Overview of NRC's Role in Storage and Transportation of Spent Fuel

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Topics



- Overview of the NRC
 - NRC's Mission, Organization, Responsibilities
- NRC's Review of Spent Fuel Storage Applications
 - NRC's Safety Review
 - NRC's Environmental Review
 - NRC's Adjudicatory Hearing Process
- Expected Timelines for NRC's Review
- NRC's Role in Transportation of Spent Fuel
- Conclusions
- Questions and Answers

NRC's Mission



NRC Mission:

To license and regulate the Nation's civilian use of radioactive materials to protect public health and safety, promote the common defense and security, and protect the environment.



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Examples of what NRC regulates

- Commercial nuclear power plants and non-power reactors
- Nuclear fuel cycle facilities
- Medical, industrial, and academic uses of radioactive material





 Transportation, storage, and disposal of nuclear materials and waste, and decommissioning of nuclear facilities from service

The NRC



- Five NRC Commissioners
 - Appointed by the President; confirmed by Senate
 - At most 3 of any one political party
 - 5-year terms
 - Chairman designated by the President





U.S. Nuclear Regulatory Commission



Pent FU

What the NRC staff does



- Implements Commission regulations and policies
- Recommends public health and safety, environmental, and security regulations
- Evaluates license applications and amendments, and issues licenses
- Evaluates emergency preparedness and response
- Inspects applicants and licensees
- Advises the Commission on safety, environmental, and security matters
- Conducts research
- Investigates possible violations of Commission requirements and addresses violations through enforcement action
- Communicates with the public

NRC's Role in Storage of Spent Fuel



- Independent regulator
- Primary mission to protect public health and safety, protect the environment, and provide for common defense and security
- Must decide whether to grant or deny a license for construction and operation of an Independent Spent Fuel Storage Installation (ISFSI)
- If license is granted and facility begins operation, NRC will inspect and oversee its operations to assure that the facility complies with safety and security requirements

NRC's Decision Process for Licensing





NRC's Safety Review



- NRC staff reviews the applicant's Safety Analysis Report and other parts of the application.
 - NRC uses experienced technical staff and independent contractors to review and evaluate the application
- As part of the review process, NRC staff may:
 - Request additional information from the applicant
 - Conduct independent confirmatory analyses, as needed
- NRC staff documents its conclusions in a publicly available Safety Evaluation Report (SER)

NRC's Safety Review: What is required?



- NRC regulations require an ISFSI to meet safety requirements, such as:
 - maintain confinement of radioactive material,
 - provide adequate radiation shielding for workers and the public,
 - prevent nuclear criticality, and
 - maintain retrievability of spent fuel
- The ISFSI applicant must demonstrate that the proposed storage system design, when used at the proposed location, meets the safety requirements under all of the following conditions:
 - Normal conditions of storage
 - Off-normal (Unusual) Events (includes temperature and pressure extremes)
 - Accidents (includes earthquakes, fires, floods, lightning, tornado, complete air flow blockage, and cask drop and tip-over)

NRC's Safety Review



- For a specifically-licensed ISFSI, NRC regulations require that the license application must also contain the following:
 - A discussion of the applicant's financial qualifications;
 - An Emergency Plan;
 - A Quality Assurance Program;
 - A Physical Protection Plan;
 - A Decommissioning Funding Plan; and
 - A Training and Qualifications Program

NRC's Environmental Review



- As required by the National Environmental Policy Act (NEPA) and NRC regulations in 10 CFR Part 51, NRC must prepare an Environmental Impact Statement (EIS) for an away-fromreactor ISFSI.
- The EIS is a comprehensive assessment of the environmental impacts of the proposed action.
- The NRC's environmental review is a public process that provides opportunities for the public to participate, comment, and provide input.

NRC Hearings



- NRC will provide an opportunity to request an adjudicatory hearing before a 3-judge licensing board of NRC's Atomic Safety and Licensing Board Panel (ASLBP).
- ASLBP is an independent adjudicatory arm of NRC that conducts hearings for the Commission.
- Potential parties may request a hearing on contested aspects of the license application, including safety, security, and environmental issues.

NRC's Final Licensing Decision



- If there is a hearing, NRC staff awaits the Licensing Board's initial decision before issuing the license
- If the Licensing Board finds in favor of the applicant, once the boards decision becomes effective, NRC staff may proceed to issue the storage license for an initial term not to exceed 40 years
- Upon issuance of the final license and technical specifications, licensee may begin construction and operation of the facility

Expected Timelines for NRC's Decision Process



NMSS

NRC Decision Stage	Estimated Timeline for Completion
Acceptance Review	Approximately 60 days
NRC Safety Review and Environmental Review	Approximately 3 years
NRC Hearings	Depends on hearing procedures, number and scope of contested issues
License Issuance	Within 10 days after initial ASLB decision becomes effective

NRC's Spent Fuel Transportation Responsibilities

- NRC and US Department of Transportation co-regulate transportation of commercial spent nuclear fuel
 - NRC/DOT Memorandum of Understanding lays out the agencies' responsibilities
 - DOT regulates carriers, modes of transport (rail, road, air, etc.)
 - NRC establishes design standards for spent fuel transportation packages
- Under NRC regulations, any entity licensed to possess commercial spent nuclear fuel is granted a general license to transport licensed material in a NRC-approved package
- Spent fuel is transported in very robust packages that must withstand hypothetical accident conditions, including:
 - free-drop onto hard surface, and puncture impact;
 - fire and water immersion









NRC's Spent Fuel Transportation Responsibilities (cont.)



- NRC establishes regulations for:
 - Package design standards for spent fuel transportation packages
 - Physical security requirements for transportation of spent fuel
- NRC evaluates applications for initial and amended transportation package designs; issues certificates
- NRC approves routes for shipment of commercial spent nuclear fuel
- NRC inspects and oversees certificate holders, package fabricators, licensee shippers, and carriers



Spent Fuel Security



- ISFSI security is maintained as part of the overall reactor security program during plant operations.
- During decommissioning, security at the site is focused on the Spent Fuel Pool and the ISFSI.
- After decommissioning, security of the ISFSI is maintained.

Conclusions



- NRC has an established regulatory framework in place for licensing spent fuel storage facilities and for transportation of spent nuclear fuel.
- Any NRC decision on any proposed storage facility will only be made after:
 - A comprehensive safety, security, and environmental review, and;
 - An opportunity for public adjudicatory hearing
- NRC expects to complete its detailed review and make a licensing decision in approximately three years