



# **Storage and Transportation of High Burnup Spent Fuel (HBF)**

## **- NRC Regulatory Activities -**

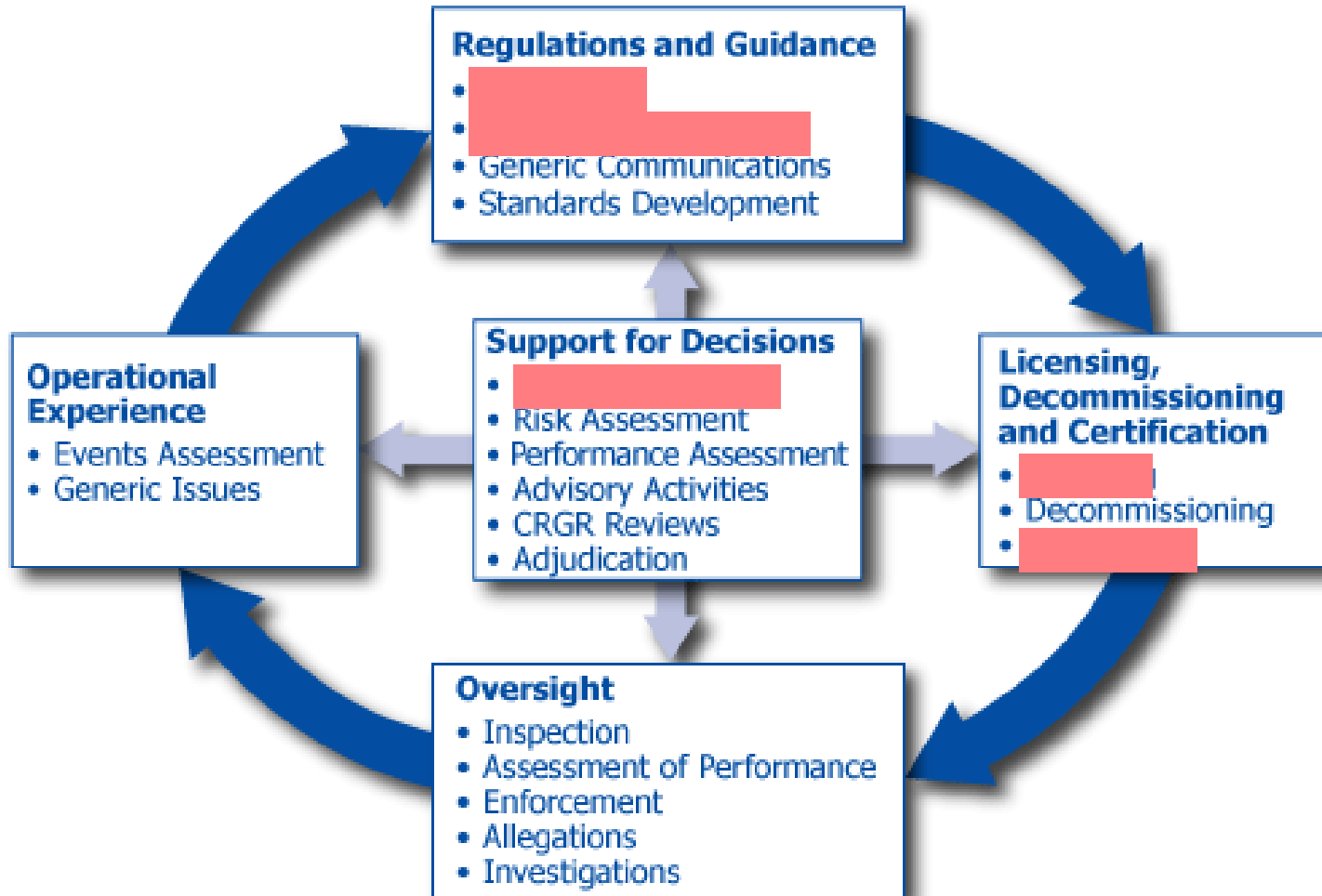
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# Key Messages

- Licensees must demonstrate the basis for safety and compliance of HBF storage and subsequent transport
- NRC will continue to anticipate challenges; respond to changes in the regulatory and technical environment; and provide clear and timely guidance for HBF
- NRC is focused, in parallel, on current licensing needs; regulatory framework enhancements; and regulatory research for HBF

# Regulating HBF Storage and Transport



# **HBF Certification and Licensing Challenges**

- **Current Part 71 Transportation Cases**
  - MP-197 HBF (docket 71-9302)
  - TN-LC HBF (docket 71-9358)
- **Current Part 72 Storage Cases**
  - Prairie Island ISFSI Renewal – HBF (docket 72-10)
- **Meeting with NEI on Storage License Renewal of HBF (Generic Implications) (ML#12237A178)**

# Relevant Regulations and Guidance

- **Regulations**

- 10 CFR 71.55: Fissile package safety requirements
- 10 CFR 71.89: Package opening
- 10 CFR 72.122(h): Protecting spent fuel cladding
- 10 CFR 72.42: Licensing Renewal and Aging Management

- **Staff Guidance**

- Interim Staff Guidance No. 2 - Rev. 1: Fuel Retrievability
- Interim Staff Guidance No. 8 - Rev. 3: Burnup Credit
- Interim Staff Guidance No. 11 - Rev 3: Cladding Considerations
- Interim Staff Guidance No. 19: Moderator Exclusion
- NUREG-1927: Standard Review Plan for Storage Renewal

# Licensing Program Improvement (LPI)

- Perform a comprehensive review of storage and transportation regulatory safety framework in accordance with SRM-COMSECY-10-0007
- Identify and address potential policy issues related to the new paradigm of storing spent fuel for longer, unknown timeframes
- Incorporate two decades of regulatory experience into enhancing the regulatory safety frameworks

- **Compatibility of Storage and Transportation (Retrievability, Cladding Integrity, and Safe Handling of Fuel)**
  - Stakeholder Meeting held on August 16<sup>th</sup>
  - Issue FRN for Stakeholder Comment in December 2012
  - Policy Issues to Commission in 2013
  - Implement Durable Guidance and Rulemaking Changes, as warranted

# Highlights of Recent Stakeholder Feedback

- Maintaining Approach of Ensuring Individual Fuel Assembly Retrievability
- Canister-Based Retrievability
- Regulating Spent Fuel Management Risks
  - Safety and performance needs during actual storage and subsequent transport
  - Uncertainties in back-end of fuel cycle
  - Unknown waste repackaging needs for ultimate disposal



# Key NRC Research Activities

- NRC-sponsored Regulatory Research
  - ANL Ductile-Brittle Testing
  - ORNL Fuel Rod Bend Testing
- NRC Extended Storage and Transportation Program
- Participation in External Research Activities
  - EPRI ESCP
  - DOE/Industry HBF Cask Demonstration Program
  - IAEA Cooperative Research Program

# Path-Forward

- Establish Interim Staff Guidance during completion of near-term licensing casework and regulatory research
- Solicit stakeholder feedback on HBF regulatory framework
- Provide any potential policy issue(s) to Commission
- Implement durable guidance and regulatory changes for the storage and transportation of HBF across multiple license & certificate periods
- Continue Long-Term Research activities, as needed