Agenda

• What we’ve accomplished in 2015
  – Part 71 Rulemaking
  – Licensing Process Improvements
  – Research & International

• What we’re working on for the future
  – More rulemaking
  – Continued Licensing Process Improvements
  – Planning for transportation of spent nuclear fuel
2015
ACCOMPLISHMENTS
10 CFR Part 71 Final Rule

• Makes conforming changes based on the International Atomic Energy Agency’s (IAEA) regulations (2003, 2005, and 2009 Editions of TS-R-1) and maintains consistency with the DOT’s regulations

• Makes some NRC initiated changes

• Effective July 13, 2015
Guidance

• Regulatory Guide (RG) 7.10, “Establishing Quality Assurance Programs for Packaging Used in Transport of Radioactive Material,” has been updated to address the changes to the oversight of QA programs
Licensing Process Improvement Review

- Compatibility of Requirements for Storage and Transportation of Spent Nuclear Fuel
  - Retrieval, Cladding Integrity, and Safe Handling of Fuel
- Regulating Stand-Alone Independent Spent Fuel Storage Installations (at Decommissioned Reactor Sites)
- Applicability and Consistency of Regulatory Framework between Site-Specific and General License Options
- Administration of Storage Certificates of Compliance for General-License Use
Fuel Retrievability

• Current guidance reflected near term repository
• Long-term performance of aging components
  – Ongoing agency and industry research
• Unintended consequences of current guidance
  – Difficulties in assessing internals may lead to opening the cask/canister
  – May increase worker dose & degrade the confinement boundary
Ready Retrieval

The ability to safely remove, with no operational safety problems, the spent fuel from storage for further processing or disposal.
Ready Retrieval (con’t)

Ability to do one or a combination of the following:

A. remove individual or canned spent fuel assemblies from wet or dry storage,
B. remove a canister loaded with spent fuel assemblies from a storage cask/overpack,
C. remove a cask loaded with spent fuel assemblies from the storage location.
• Focuses on safety and design bases to allow maximum flexibility for an undefined storage duration
• Provides guidance to the NRC staff on licensing reviews
High Burnup Fuel Transport

- Draft RIS 2015-XX, “Considerations in Licensing High Burnup Spent Fuel in Storage and Transportation” published for public comment March 5, 2015
International Participation

• IAEA Transportation Safety Standards Committee (TRANSSC) with U.S. Department of Transportation


• Drafting the IAEA Nuclear Energy Series NF-T-3.X, “Storage of Spent Fuel Beyond the Short Term”

• Participation in the International Extended Storage Collaboration Program meetings

• Development of IAEA Safety Series 6 and related guidance documents, including the safety case for dual purpose casks for spent nuclear fuel
2016
LOOKING TO THE FUTURE
Future Regulations & Guidance

• Comparison of 10 CFR Part 71 and the IAEA “Regulations for the Safe Transport of Radioactive Material” 2012 Edition

• Consideration of the draft IAEA Safety Guide “Package Design Safety Report” (DS493)
Licensing Program Improvements

• Continued activities in the key areas
  – Compatibility of storage & transportation regulatory framework
  – Regulating Independent Spent Fuel Storage Installations (ISFSIs) at decommissioned reactor sites
    • Reviewing framework for unloading capability at ISFSIs
Licensing Process Improvements

- Current activities continue
  - Compatibility of specific and general licensing requirements for storage
    - Reviewing §72.218 and possible cross references in §§ 50.54(bb), 50.82, and 52.110
  - Administration of certificates of compliance for general-licensee use
    - Preparing guidance on use of the revision process
Interim Away from Reactor Storage Facility

... or the storage – transport – storage

... transport – disposal scenario
DPC or transportable canister

Dual-purpose Cask

Transportable canister
Transportation approval

• Defined Contents
  – Storage contents approved for transport
  – Performance under normal and accident conditions

• Packaging Design
  – Transportation certificate lists drawings storage certificates do not
  – Changes in storage cask design pursuant to 10 CFR 72.48 vs compliance with drawings
  – Aging Management
Transfer from storage to transport

• Dual-purpose casks
  – Impact limiter attachments
  – Seal replacement and leak tests on containment system
  – Aging management/inspections

• Transportable Canisters
  – Canister integrity inspections
  – Confirmation of authorized contents
Licensee Considerations

• Does the transport package meet the certificate of compliance

• Will I need any approvals from NRC to transport (design or contents)
  – Timeframe for preparation of the application
  – Review and approval ~ 1 to 2 years

• Concurrent applications with NRC prior to a large-scale transportation
Licensee Considerations

• Maintaining records to support shipments
  – Quality assurance for fabrication
  – Contents

• Ensuring adequate transfer of records to away from reactor storage to support future transport for disposal
Thank you
Background Slides on Part 71 Rulemaking
Changes for Harmonization with IAEA

• Some Changes in both NRC and DOT Rules
  – Exclude from scope processed ores and natural materials and items below contamination definition
  – Revised definitions for CSI, LSA, “natural uranium”
  – Updates to special form tests
Changes for Harmonization with IAEA (cont.)

• Some Changes in both NRC and DOT Rules (cont.)
  – Clarification of neutron emitters in general exemption values and general A1, A2 values
  – New A values for Cf-252, Kr-79
  – Updated exempt limits for Kr-79, Te-121m
  – Updated A value contributions from daughter nuclides with half-lives less than 10 days
Changes for Harmonization with IAEA (cont.)

- Changes only in DOT Rule
  - Marking of Overpacks
  - New PSN for UF6 < 0.1 kg
  - Apply contamination limits to overpacks, freight containers, tanks, IBCs and conveyances
  - Clarify that Type A stacking test requires 5X maximum loaded weight
DOT- Initiated Changes

- Placarding for Exclusive Use Shipments
- Retain Type IP-2, IP-3, Type A, Special Form, & UF6 packaging documents for 2 years
- Revised Type A Package documentation requirements
- Clarified contamination requirements for “return to service” applies only to subsequent exclusive use (otherwise, exclusive use can end by shipper’s instructions and then the standard contamination controls and definitions apply)
NRC-Initiated Changes

• There are 3 NRC-initiated changes:
  1. Section 71.15, “Exemption from classification as fissile material”
  2. Section 71.85, “Preliminary determination”
  3. Section 71.106, “Changes to a quality assurance program”
NRC-Initiated Changes (cont.)

• Amends 10 CFR 71.15, “Exemption from classification as fissile material,” paragraph (d)
  – Reinstates restriction on an exemption pertaining to uranium, enriched in the uranium-235 isotope, to a maximum of 1 percent to ensure criticality events do not occur by requiring the fissile material be distributed homogeneously within the transportation package, and not form a lattice arrangement.
NRC-Initiated Changes (cont.)

- Amends 10 CFR 71.85, “Preliminary determination,” paragraphs (a), (b), and (c)
  - Replaces “licensee” with “certificate holder”
  - Makes certificate holders who manufacture the transportation packages, rather than the licensees who use them, responsible for making the required preliminary determinations
  - NRC experience is that these determinations are performed by the certificate holders, and this change will make the requirements consistent with current practice
  - Only certificate holders will need to have a QA program approval that will allow them to conduct the required tests under an approved quality assurance program
NRC-Initiated Changes (cont.)

• Amends 10 CFR 71.85, “Preliminary determination,” adds 10 CFR 71.85 paragraph (d)
  – States responsibilities of licensees using a package for transportation.
  – Although certificate holders must make preliminary determinations under paragraphs (a), (b), and (c), licensees remain responsible for ensuring that these determinations have been made before their first use of the packaging
NRC-Initiated Changes (cont.)

• **Add new section 71.106, “Changes to a quality assurance program.”**
  
  – establishes requirements that would apply to changes to QA program
  
  – allows some changes to a QA program to be made and implemented without obtaining the prior approval of the NRC
  
  – Renewal of QA program approvals no longer required