

Topical Report For Allowance of Candidate Heat Load Patterns Without Amendment Request (Public Session)



Background

- HI-STORM 100 System Designed for Long Term Spent Fuel Storage
- System Initially Licensed in 2000 Under Modest Heat Load Limits (20.88 kW PWR MPC, 21.52 kW BWR MPC)
- Limits Adequate to Address Old & Cold Fuel
- Secured Over Ten Amendments Wherein Heat Limits Upgraded to 28.74 kW (CoC Rev. 1), 36.9 kW (CoC Rev. 5) and 40 kW (proposed Amendment 15) to Address Evolving Fuel Storage Needs
- Heat Load Needs Projected to Grow as Cask Designers Challenged by Shuttering Nuclear Plants

US Plants Retirement Map

U.S. nuclear power plants that have retired or announced retirement



Source: Nuclear Energy Insider, June 5, 2019.

Objective

- Approval of a Suitable Methodology Permitting Licensee Qualification of Candidate Heat Load Patterns Without License Amendment
- The Intent of Above is to:
 - Address Emerging Needs in a Timely Manner Consistent with Safety
 - Facilitate Management and Optimization of Fuel Inventories with Intent to Maximize ALARA
 - Avoid Undue Engagement of Regulatory Resources. See Next Slide.

Objective

- Fewer Amendment Applications
 - ✓ Amd 12 and 14 would have been essentially not needed
 - ✓ Additional exemption requests also would not have been needed
- Provides pathway for other systems
 - ✓ HI-STORM FW Amd 5
 - ✓ Upcoming planned amendments for all systems

Proposal Justification

- Principal Premise: Candidate Heat Load Patterns Comply with All Safety Limits Under an Approved License
- Candidate Patterns Evaluated Adopting Thermal Methodologies and Models Supporting Licensed HI-STORM 100 System
- Proposed Approach Ensure Safe Fuel Storage Under Normal, Off-Normal and Accident Events
- Proposed Approach Ensures Safety Margins by Requiring Compliance to More Restrictive Limits

HI-STORM System Recap

- Principal Features
 - Ventilated METCON (Metal-Concrete) Overpack
 - Multipurpose Welded Stainless Steel Canister (MPC) with honeycomb fuel basket construction using either Alloy-X or Metamic-HT materials
 - MPC Helium pressurized to support internal convection heat transfer

HI-STORM Recap (Cont.)

