

Data Needs for Very Long Term Storage of Used Fuel – Utility Perspective

Presentation for the Nuclear Waste Technical Review Board

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Dominion

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 - Surry (2 Unit PWR)
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 - Millstone (2 Unit PWR, 1 Unit BWR (permanently shutdown))
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- Very Long Term Storage Data Needs

Surry ISFSI

- **Site specific license (July 1986)**

- Pads 1 and 2
- 55 metal storage casks in place
 - Five different cask designs
 - 1470 fuel assemblies
- Experienced secondary seal failure on several casks
 - Implemented corrective actions
 - No recurrence of seal failures
- License renewed for 40 years
 - To July 2046



Surry ISFSI Pad 3 (NUHOMS HD)

•General license

- Transition to Transnuclear NUHOMS as part of fleet initiative in summer 2007
 - Seven, 32-assembly canisters in storage
 - Eighth in progress
 - Heat loads in excess of 33 kW



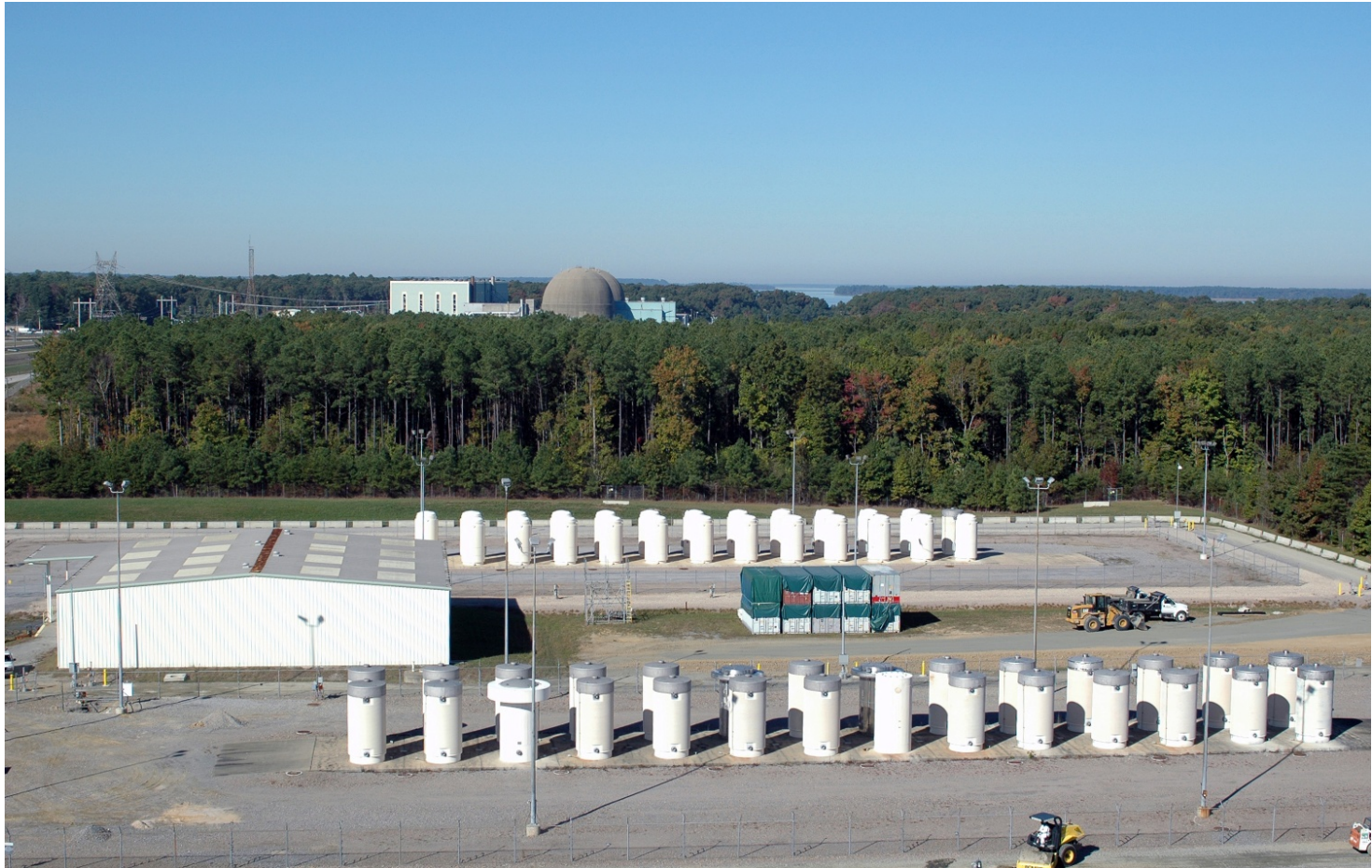
Surry ISFSI Pad 3 (NUHOMS HD)

- Pad 3 is designed for 40 modules and has capacity to accept fuel for storage until approximately 2020



Surry ISFSI

- Pads 1 and 2 represent approximately 42 reactor-years of SNF and its associated HLW



North Anna ISFSI

•Site specific license (June 1998)

- One pad
- 27 TN-32 Casks
 - 864 fuel assemblies
- All planned cask loadings are completed for the site specific license
- License renewal application due in 2016



North Anna ISFSI

- **General License**

- Pad 2
- NUHOMS HD
 - Began operation in March 2008
 - Four, 32 PWR assembly canisters currently in storage



North Anna ISFSI

- Pad 2 is designed for 40 modules and has capacity to accept fuel for storage until approximately 2021



Millstone ISFSI

- Entire ISFSI is under general license
 - Two pads are planned
 - 19 concrete modules installed



Millstone ISFSI

- Nine 32PT canisters under fabrication at Hitachi-Zosen in Japan



Millstone ISFSI

- Eleven 32-assembly canisters currently loaded
- Pads are designed to accept fuel from Units 2 and 3 with license extension



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Kewaunee ISFSI

- Entire ISFSI is under general license
 - All NUHOMS
 - One pad of two constructed
 - 10 concrete modules installed
 - Operation to begin summer 2009



Very Long Term Storage Data Needs

- Burnup Credit for Transportation
 - Likely that some used fuel currently in (or planned for) dual purpose storage cannot be shipped with current licensing framework
 - Data are needed to change licensing structure
- Review of Repository Canister Heat Load
 - Canister design basis heat load needs to be in line with current operating practices
- Recommend Long-term High Burnup Storage Characterization Program
 - Similar to recent DOE/EPRI program
 - Evaluate effects of following with high burnup fuel (greater than 45,000 MWd/MtU) :
 - Cladding defects
 - Varying storage environments
 - Transportation