



Strategic Programmatic Overview Of the Decommissioning and Low-Level Waste and Spent Fuel Storage and Transportation Business Lines

Commission Meeting
October 11, 2018





**Deputy Executive Director for Materials,
Waste, Research, State, Tribal, Compliance,
Administration and Human Capital Programs**

Daniel Dorman

Spent Fuel Storage and Transportation Business Line Meeting Agenda:

- Business Line Overview – Marc Dapas
- Current Spent Fuel Program Environment – Michael Layton
- Spent Fuel Licensing Activities – John McKirgan
- Spent Fuel Research Activities – Christian Araguas



Office of Nuclear Material Safety and Safeguards

Marc Dapas, Director

Focusing on Our Priorities

- Ensuring safety and security through effective licensing and oversight activities
- Continuing to conduct lessons learned, self-assessments, and knowledge management in support of continuous improvement

Making Significant Progress on Several Regulatory Initiatives

- Continuing to make progress in key guidance documents
- Completing graded approach licensing review pilot
- Applying flexibilities in the regulatory review process



Division of Spent Fuel Management

Michael Layton, Director

Planning to Address Increase Workload

- Anticipating amendments and new applications
- Continuing to support Accident Tolerant Fuel activities
- Expecting an increase in license/certificate renewals
- Leveraging CNWRA contractor expertise

Actively Seeking Improvements to Licensing and Oversight Processes

- Risk-informing our processes
- Closely coordinating with Regions on reviewing design changes
- Conducting training and knowledge management to improve licensing/oversight
- Leveraging research activities



**Division of Spent Fuel
Management
Spent Fuel Licensing Branch**

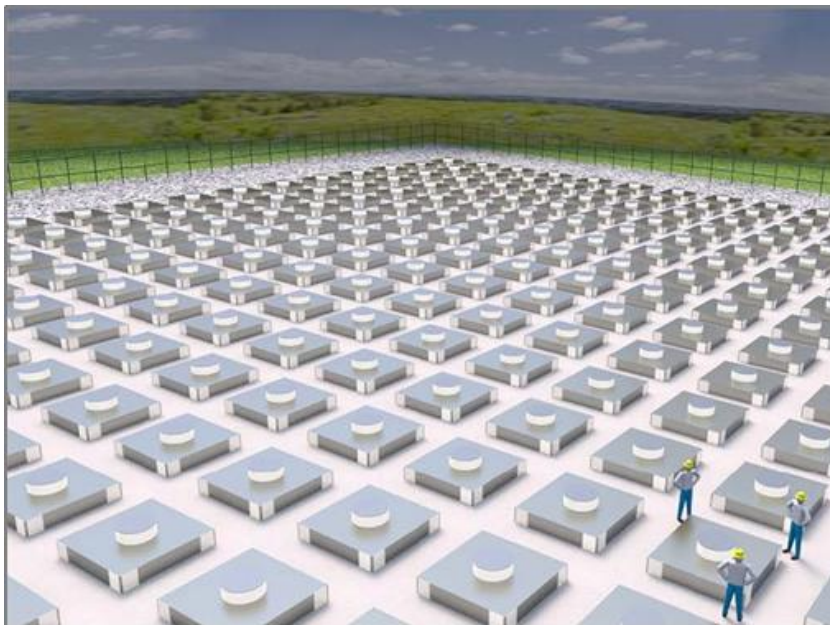
John McKirgan, Chief

Meeting the Challenges of a Dynamic External Environment

- Proactively engaging and communicating with industry
- Mitigating unanticipated schedule changes by coordinated prioritization
- Addressing increase in technical complexity to meet accelerated reactor decommissioning schedules

Focused Attention on Consolidated Interim Storage Facility Applications

- Good planning and communication
- Working across the agency to obtain critical skills for licensing reviews



Outreach Opportunities with Consolidated Interim Storage

- Staff responded quickly to outreach opportunities with respect to Consolidated Interim Storage Facility applications.



- Higher than expected number and breadth of inquires offer outreach opportunities and challenges.

Successful Implementation of Enhanced Renewal Guidance

- Licensing
 - Significant efficiency gains in renewal reviews demonstrated by reduced number of requests for information
 - Active engagement with stakeholders yields early benefits
- Oversight
 - Performing pre-inspection of Aging Management Programs enables the development of a high quality inspection procedure



Office of Nuclear Regulatory Research Division of System Analysis

Christian Araguas, Acting Deputy Director

Providing Technical Advice, Tools, and Information

- Research Needs Identified Through Cooperative User Need Process
- Technical Expertise Provided in Materials, Thermal, Fuels, and Criticality Safety



NUREG-2174

Impact of Variation in Environmental Conditions on the Thermal Performance of Dry Storage Casks

Final Report



NUREG-2152

Computational Fluid Dynamics Best Practice Guidelines for Dry Cask Applications

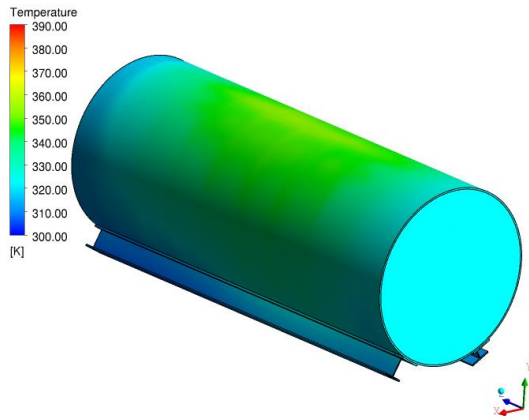
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Final Report

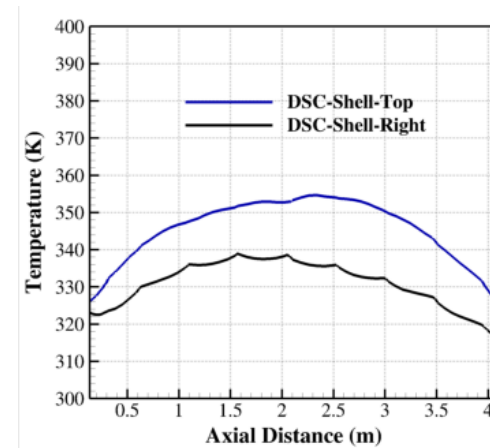
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Ensuring Safety Through the Use of Advanced Computer Modeling

- Computational fluid dynamics (CFD) relied on by industry and NRC



Contours of Dry Shielded Canister shell surface temperature



Temperature Profile for a Dry Shielded Canister within a Horizontal Storage Module

- RES performs confirmatory analysis of applicant CFD methods

Reducing Regulatory Burden Through Cooperative Research Programs

- Dry Cask Simulator



Photo by Randy Montoya, Courtesy of Sandia National Laboratory

Reducing Regulatory Burden Through Cooperative Research Programs (continued)

- North Anna High Burn-Up Cask Demonstration Project



Photo Courtesy of Dominion Energy

Acronyms

- CFD - Computational fluid dynamics
- CNWRA - Center of Nuclear Waste Regulatory Analysis
- EPRI - Electric Power Research Institute
- ISFSI - Independent Spent Fuel Storage Installation
- MAPS - Managing Aging Processes in Storage
- SFST - Spent Fuel Storage and Transportation
- SNL – Sandia National Laboratory
- STIMS - Storage and Transportation Information Management System