U.S.NRC
United States Nuclear Regulatory Commission
*Protecting People and the Environment*

# *Status Update: Extended Storage and Transportation Waste Confidence*

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**U.S. Nuclear Regulatory Commission**

**2013 NEI Used Fuel Management Conference**

**May 7 – May 9, 2013 ♦ St. Petersburg, Florida**

# Overview

- Update on NRC activities for the back end of the fuel cycle
  - Regulatory framework for extended storage and transportation
  - Update of the Waste Confidence decision and rule

# Current Policy Environment

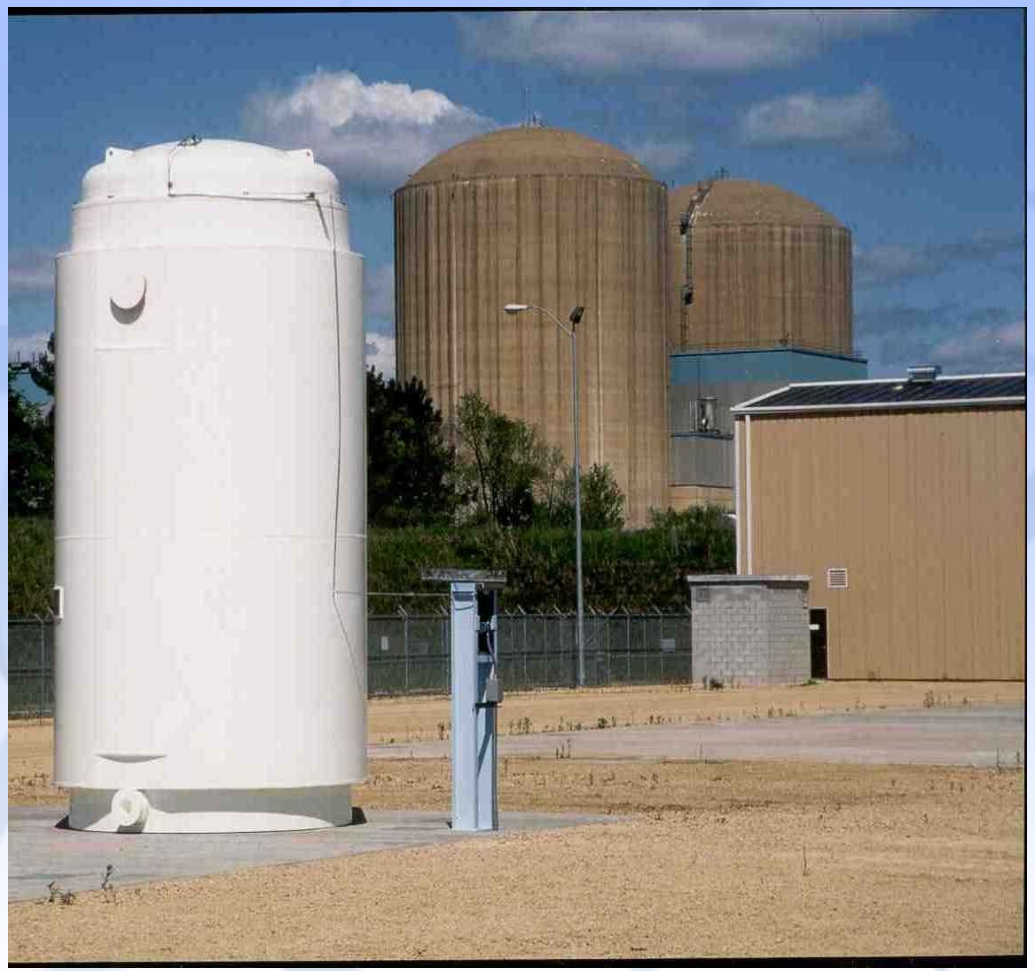
- U.S. national policy for disposition of spent nuclear fuel is in transition
  - Extended (dry) storage of spent fuel may be necessary
  - Alternative disposal options may emerge
- NRC's mission remains the same – ensure the safe and secure use of radioactive materials while protecting people and the environment
- Consistent with Commission direction, NRC staff is preparing for potential changes in policy

# NRC Initiatives

- Extended Storage and Transportation (EST)
  - Identify and address areas that may affect safe storage of spent fuel over long periods, and related transportation
  - Potential changes to NRC storage and transportation regulations and guidance
- Waste Confidence
  - Commission directed staff to prepare Environmental Impact Statement (EIS) and revised rule within 24 months
  - Commission order: no final licenses until Waste Confidence is complete

# Extended Spent Fuel Storage and Transportation: Framework

- Dry Storage
  - 10 CFR Part 72
  - Term certificates and licenses
  - Aging management plans for renewal
  - Multiple renewals allowed
- Transportation
  - 10 CFR Part 71
  - Term certificates with renewal
  - Certification generally separate from storage



# Extended Spent Fuel Storage and Transportation: Approach

- Enhance technical knowledge for regulating extended storage of spent nuclear fuel
  - Identify technical issues associated with long-term storage and subsequent transportation
  - Perform focused research on technical areas of regulatory significance
- Identify needed revisions to regulatory framework
- As appropriate,
  - revise regulations
  - develop or revise guidance
  - develop staff capabilities

# *Extended Spent Fuel Storage and Transportation: Current Work*

- Finalize report on *Technical Information Needs Affecting Potential Regulation of Extended Storage and Transportation*
  - Respond to public comments
  - Small adjustments to priority areas
  - Clarifications and improved explanations
- Technical investigations underway in highest-priority areas
- Further technical investigations in next level areas now starting

# Extended Spent Fuel Storage and Transportation: Technical Needs

- Focus on potential degradation phenomena for dry storage systems
- Consider impact on performance of safety functions
- Highest priority technical information needs
  - Stress corrosion cracking of stainless steel canisters and welds
  - Swelling of fuel over time, including fuel fragmentation
  - More realistic thermal models for longer time periods
  - Effects of residual moisture after drying
  - In-service monitoring methods
- Eight areas in next priority level include degradation processes for cladding, hardware, concrete

# Extended Spent Fuel Storage and Transportation: Current Projects

- Examples of current NRC technical investigations:
  - Laboratory tests to better define susceptible conditions for stress corrosion cracking of canisters
  - Development of more-realistic thermal models using computational fluid dynamics methods
  - Analysis of potential effects of residual moisture
  - Surveys of in-service monitoring and non-destructive examination methods
  - Research plan for fuel swelling and cladding stress
  - Research plan for concrete degradation, inspection, and monitoring

# Waste Confidence Status

- NRC staff is on schedule
  - Completed first phase of project in March 2013
  - Scoping Summary Report
- Status updates
  - NRC staff holds monthly teleconferences, updates website, maintains e-mail list

# Waste Confidence Next Steps

- Plan to complete the draft generic EIS and rule for comment by September 2013
- Plan to hold 8 meetings across the U.S. plus 2 webcast meetings from NRC HQ in the September-October timeframe
- 75-day comment period
- Final EIS and Rule by September 2014

# Conclusions

- NRC is continuing to perform its mission while preparing for potential policy changes
- NRC is engaged in several multi-year initiatives concerning storage and transportation of spent fuel
- Initial NRC staff efforts have defined tasks and developed plans and schedules
- Technical work is underway on high priority areas
- Staff will continue in productive interactions with public, industry, and other stakeholders

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