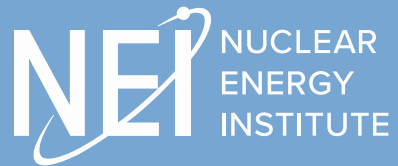


NRC-NEI/Industry Spent Fuel Activities Prioritization Meeting: NEI Perspectives

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Context

- Over the past several years the industry has achieved new regulatory efficiencies through NRC's adoption of the recommendations in the NEI white paper on used fuel performance margins and related efforts such as endorsement of NEI 12-04 and NEI 14-03
- Challenges to industry and staff resources, including engagement on use of administrative controls for short term operations have diverted attention from performance margins work
- Objective: NEI and NRC recover momentum for new and ongoing efficiency improvement actions

Vision of Success

- Completion and implementation of the remaining performance margins recommendations results in:
 - Improvements in dry storage licensing efficiency and recent gains are maintained
 - Improved regulatory efficiencies through application of NRC's Very Low Safety Significance Issue Resolution (VLSSIR) Process or implementation of NEI guidance to address used fuel issues
 - Lessons learned and insights gained are applied in pursuit of new opportunities for licensing efficiencies for spent fuel storage and transportation

Ongoing Actions

- Fuel Integrity Metrics (multiple completed and ongoing PIRTs)
 - Remains high priority/high value to industry
 - Anticipate submittal of Topical Report Q2/3 2023 that reflects integration of thermal margins, fuel integrity metrics and gross rupture definition
- Risk Tool Implementation and Applications
 - Remains high priority/high value to industry
 - Transparency in application will inform industry implementation
- Graded Approach (Orano Pilot)
 - Remains high priority/high value to industry
 - Limited applications identified inefficiencies
- Shielding Method of Evaluation
 - Remains high priority/high value to industry
 - Holtec TR review underway with good engagement with staff

Criticality Recommendations

- Recommendations regarding “Align licensing approaches for criticality safety (VII-1)” and “Develop more realistic modeling for fuel configuration (VII-2)” are identified as helpful by industry but not a high priority at this time.
- NRC has indicated willingness to consider additional credit on neutron absorber capability pending results of additional research
- NEI open to proposal development
- Resource constraints with industry and NRC staff will drive timing of any potential work

New or Emergent Topics

- Modernizing Inspection Processes
- Update on generic approach to meeting extreme environmental hazard requirements for spent fuel operations
- Technical reviews associated with use of increased enrichment, advanced reactor, accident tolerant and high burnup fuels for dry fuel storage and transportation

ATF/LEU+/HBU Considerations

- Performance Margins Activities have strong utility for ATF/LEU+/HBU:
 - Alternate fuel performance metrics provides margins for advanced LWR fuels
 - Criticality and shielding activities provide value for advanced LWR fuels
 - Complementary value of these activities for conventional and advanced LWR fuels
- EPRI ESCP Workshop on ATF Impacts on Back-end Operations (11/19)
 - No major issues for ATF, but higher enrichment/burnup data needs
 - Approximately 5-7 years from design of new canisters to license
- ORNL/TM-2021/1961: Extended-Enrichment Accident-Tolerant LWR Fuel Isotopic and Lattice Parameter Trends (03/21)
- IAEA TM eATF Opportunities and Challenges for the Back-End (06/22)
- NEI Letter to DOE – Industry’s R&D Priorities for ATF (09/22)
 - Prepare for the eventual storage and transportation of spent ATF/LEU+/HBU (Tier III)

Next Steps

- Engage to identify and prioritize ongoing and new actions
- Align on priorities and identify staff and industry leads and ownership
- Establish timelines for technical discussions, public meetings and deliverables
- Identify what success looks like for each action and the associated deliverable

Questions?
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