



Regulatory Perspectives on Degradation of Neutron Absorbing Materials in the Spent Fuel Pool

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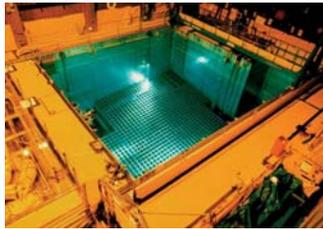
Regulatory Information Conference
Degradation of Neutron Absorbing Materials in the Spent Fuel Pool
March 13, 2014

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Overview

- Safety Significance
- Background
- Experience
- NRC Interaction
- Topics of Interest
- NRC Path Forward
- Timeline
- Summary



Picture: Spent Fuel Pool

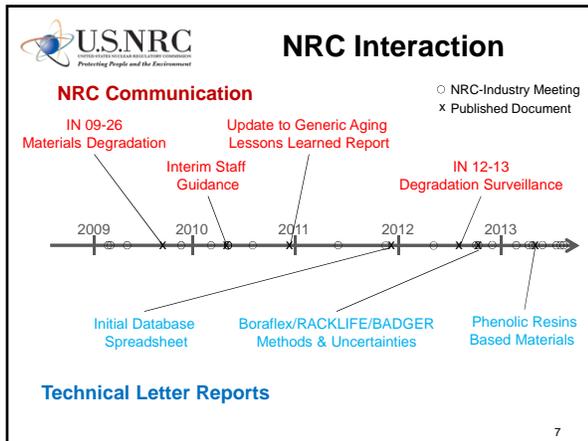
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Safety Significance

- Prevent the occurrence of any inadvertent criticality events in the SFP
- Neutron absorbing materials have a direct impact on safety
 - Unidentified and unmitigated degradation poses a criticality and safety concern
 - Challenges compliance with NRC subcriticality requirements: 10 CFR 50.68 and GDC 62
- NRC staff has identified this issue as potentially safety significant

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- Topics of Interest**
- Material properties and configuration
 - Surveillance program methodologies
 - Surveillance program frequencies
 - Criticality analysis modeling of the material and degraded material
 - Design basis event effects
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- NRC Path Forward**
- Draft Generic Letter 201X-XX:
Monitoring of Neutron-Absorbing Materials in Spent Fuel Pools
 - Review of NEI 12-16
 - Additional material-based research
 - Meeting with industry and standards groups
 - Potential regulatory guide
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Timeline

- Draft Generic Letter (GL)
 - Publically Available - ML13100A086
 - Public Meeting on Draft GL
 - April 14, 2014 (tentative)
 - Public Comment Period
 - Published in the Federal Register March 11, 2014
 - Comment period ends May 12, 2014
- NEI UFMC Presentation – May 7, 2014

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Summary

- NRC staff has identified this issue as potentially safety significant
- Monitoring programs are important
- Topics of interest
- Additional dialogue with industry
- Regulatory guidance, as necessary
- Other generic communications, as necessary

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References

- Draft Generic Letter 201X-XX: Monitoring of Neutron-Absorbing Materials in Spent Fuel Pools – ML13100A086
- Information Notice 09-26 Degradation of Neutron-Absorbing Materials in the Spent Fuel Pool – ML092440545
- Information Notice 12-13 Boraflex Degradation Surveillance Programs and Corrective Actions in the Spent Fuel Pool – ML121660156
- NUREG – 1801: Generic Aging Lessons Learned (GALL) Report Revision 2
- LR-ISG 2009-01: Aging Management of Spent Fuel Pool Neutron-Absorbing Materials Other Than Boraflex – ML100621321
- "Boraflex, RACKLIFE, and BADGER: Description and Uncertainties" - ML12216A307
- "Initial Assessment of Uncertainties Associated with BADGER Methodology" - ML12254A064
- "Monitoring Degradation of Phenolic Resin-Based Neutron Absorbers in Spent Nuclear Fuel Pools" - ML13141A182
- Spent Fuel Pool Criticality Management Database - ML13212A064
- Spent Fuel Pool Criticality Management Technical Letter Report - ML113550241
- NRC Public Website Summary: <http://www.nrc.gov/waste/spent-fuel-storage/pools.html>
