

Spent Fuel Pool Criticality Analyses A Path to Regulatory Clarity, Predictability and Stability

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Criticality analyses have been used by licensees and approved by NRC for decades

Late 70's – 1998

Maturation of analyses

- 10CFR50, GDC 62 for subcriticality
- 10CFR70.24 for criticality monitoring
 - Many exemptions based on analytical methods
- GL-78-11; 1978 Grimes Letter (Guidance for analysis)

1998 – 2006

Regulatory stability

- 10CFR50.68 for analytical methods
 - Established as alternative to 70.24
 - Consistent with methods used for 70.24 exemptions
- 1998 Kopp Memo (Guidance for analysis)

2006 – 2011

Regulatory uncertainty

- No change to regulations
- Used of Kopp guidance increasingly discouraged
- NRC action plan and guidance introduced in 2011



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Regulatory environment 2006-2011

- Significant uncertainty
 - NRC concerned about quality of license amendment requests (LARs)
 - NRC concerned about neutron absorber degradation
 - New NRC reviewers question previously accepted approaches
 - New NRC positions documented in reviews, not generic communications
- Plant operations adversely affected
 - Percentage of LARs resulting in withdrawals increased to 50%
 - Average LAR review time increased from 12 to 22 months (approx.)
 - Licensees holding back on LAR submittals
 - Changes needed for more effective pool management not made



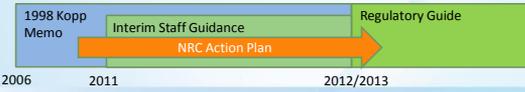
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A plan to reach regulatory clarity, predictability and stability is essential

- Industry fully supports NRC's Action Plan
 - Clear path to durable guidance
 - Stakeholders engaged
 - Periodic updates
- Action plan provides pathway to clarity
 - Step-wise approach to guidance (ISG, RG)
 - Develop multiple technical reports (NUREG/CRs)
 - Address engineering judgment, input to guidance



Regulatory clarity was improved with NRC's interim staff guidance

- Draft issued in 2010, final issued in 2011
- Generically documented changes in NRC positions since 2006
- Industry seeks more clarity

1998 Kopp memo	DSS-ISG-2010-01
<ul style="list-style-type: none"> • Continues to be conservative • Comprehensive • Applies engineering judgment • 5% for depletion uncertainty 	<ul style="list-style-type: none"> • Increases conservatism • Improved clarity/detail • Reduces engineering judgment • 5% remains, but is restricted

Industry guidance proposed to fully restore regulatory clarity, stability

Addresses NRC resource constraints	NRC retains authority	Ensures durability
<ul style="list-style-type: none"> • Majority of effort is in writing guidance • Less strain on NRC resources as reviewer/approver • Reduces future burden on NRC for review of submittals 	<ul style="list-style-type: none"> • Industry must satisfactorily address NRC feedback to obtain endorsement • NRC can choose not to endorse, or take exceptions 	<ul style="list-style-type: none"> • Capitalizes on dialogue between applicants and regulator • Endorsement through Regulatory Guide consistent with NRC's plans

- Meets requirements for fee waiver, 10 CFR 170.11(a)(1)
