

NRC Public Meeting: Draft Interim Staff Guidance for Chromium-Coated Cladding

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Background

- September 2018: NRC's Accident Tolerant Fuel (ATF) Project Plan issued (ML18261A414)
- October 2018: Electric Power Research Institute (EPRI) Coated Cladding Gap Analysis
- November 2018: Nuclear Energy Institute In-Reactor Screening Review
- January 2019: Initial report on degradation and failure mechanisms of Cr-coated cladding issued
- April 2019: Expert panel convened to conduct phenomena identification and ranking table (PIRT)
- June 2019: Final PIRT report on degradation and failure mechanisms of Cr-coated cladding issued (ML19172A154)

ISG Development Timeline

- July 18, 2019: Initial public draft issued
- August 06, 2019: Public meeting to solicit stakeholder feedback
- September 17, 2019: ACRS Subcommittee briefing
- September 30, 2019: Issue in Federal Register for public comment
- Early December 2019: Public meeting on comment resolution
- Late December 2019: Final issuance of ISG

ISG will incorporate PIRT findings into regulatory infrastructure

- ISG does not:
 - include new requirements
 - create new rules or regulations
 - require specific testing or analyses
- ISG does:
 - provide guidance to staff, informed by the PIRT, on important areas for review
 - provide information to vendors and licensees of what is expected

General Design Criterion 10 - Reactor design. The reactor core and associated coolant, control, and protection systems shall be designed with appropriate margin to assure that specified acceptable fuel design limits are not exceeded during any condition of normal operation, including the effects of anticipated operational occurrences.

Standard Review Plan (SRP)

Chapter 4 - Reactor

- Fuel properties
 - Refers to Appendix B, taken from the PIRT
 - All properties listed should be addressed in submittal
- Specified acceptable fuel design limits (SAFDLs)
 - Refers to Appendix C, taken from the PIRT
 - Existing SAFDLs may need to be amended
 - New failure mechanisms listed
 - Should be addressed by submittal
 - Many may be covered by existing SAFDLs
 - New SAFDLs may be needed
- Nuclear and thermal hydraulic design requirements exist in Sections 4.3 and 4.4

SRP Chapter 15 - Transient and Accident Analysis

- Changes to material properties and thermal mechanical behavior should be incorporated
- Impact on each anticipated operational occurrence (AOO) and postulated accident should be addressed
- Impacts of changes to existing SAFDLs should be addressed