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

Public Meeting on Comment Resolution: 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 conducted 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
- October 24, 2019: Issue in Federal Register for public comment
- **December 4, 2019: Public meeting on comment resolution**
- Late December 2019: Send to OMB for CRA review
- After CRA review (February?): Final issuance of ISG

Prior comments about material properties have been considered

- Emissivity
  - Identified as less important by the PIRT
  - Stakeholder identified reduced external emissivity as area where current cladding properties are non-conservative
  - ISG has been modified to account for this
- Oxidation rate
  - Replaced cracked coating suggestion with intentionally damaged
  - Noted possible use of non-fueled data
- Tweaked language for other properties to avoid implying specific testing requirements

Prior comments about SAFDLs have been considered

- Discussion on boiling crises updated based on feedback
  - Contradictory statements in different appendices were clarified
- General request was made to clarify testing expectations
  - Not directly addressed. Difficult to do generally without being overly prescriptive

Stakeholder comments received before noticed comment period

- Clarify that conservative models or assumptions could be defined where data does not yet exist
- Requirements for crack inspection and performance testing need to support performance benefits / assumptions claimed
- NRC accepted these suggestions

Comments submitted during formal notice period

- Comment: Industry recognizes the importance of process controls in manufacturing, but believes that the NRC should not license specific manufacturing processes.
  - ISG text should be clarified that the specifics of the manufacturing process should not be included in the licensing criteria.
- NRC Response: It is the responsibility of the applicant to provide a definition of the product under review. If the applicant must include process parameters to do this then they may be appropriate.

Comments submitted during formal notice period

- Comment: Fuels continue to lag behind the rest of the NRC in becoming risk-informed. Add language that fuel and supporting systems should be used to make reasonable assurance determination.
- NRC Response:
  - Changes suggested are outside the scope of the ISG
  - Fuel has a large impact on safety and risk, but
  - NRC has and will continue to work to better risk inform fuels licensing

Questions and Comments?