

# ANL High Burnup LOCA Tests

## A Vendor Perspective

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# Industry Needs

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- 1) Resolution of Technical and Regulatory Issues for Current Materials
- 2) Ability to Adapt ANL Test Methods to New Materials
- 3) If Performance-Based Rulemaking Occurs, Need Criteria that can be Practically Applied in LOCA Evaluation Models

# Technical and Regulatory Issues

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- 1) Applicability of ECCS Acceptance Criteria to High Burnup Fuel
  - Hydrogen Effects on Coolable Geometry to 2200F, 17% Local Oxidation
- 2) Effects of Pre-Transient Oxidation
  - Eliminate Consideration as Component of Total ECR
- 3) Continued Use of Realistic Oxidation Kinetics Models in Realistic LOCA Evaluation Models
  - Supported by Existing Data

# Technical and Regulatory Issues (cont'd)

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## 4) Testing Methods Used to Confirm Current Acceptance Criteria

- Need for Consistency with Current Bases (1988 Rulemaking)
- Need to Generate Most Meaningful Data Possible with Few Samples

# Application of Test Methods to New Materials

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Generation of High Burnup Specimens Requires 3 or More Cycles of Irradiation

- Requires 6+ Years from Beginning of Irradiation to Hot Cell Delivery

Cost and Logistics of Hot Cell Programs are Prohibitive

Expectation is that High Burnup Behavior can be Simulated by Hydrogen Charging of Unirradiated Cladding

- ANL Program Should Confirm

# Performance Based Rulemaking Initiative

Agree with Desire to Minimize Use of Exemptions for New Materials

Need to Understand Implications of Performance Based Option (More Detail)

Desire to Avoid Rule Changes that Require Overhauling Current LOCA Evaluation Models

# Summary

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Testing Method Issues Need to be Resolved

- Industry Appreciates Receptiveness to Stakeholder Meeting

Industry Input to Potential Rulemaking Essential

- Rulemaking Process Provides Opportunity via Public Comment Period