

# Codes and Methods LTRs

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# Outline

- Loss-of-Coolant Accident (LOCA) Phenomena Identification and Ranking Table (PIRT) Licensing Technical Report (LTR)
- LOCA Integral Scaling LTR
- LOCA Testing and Assessment Plan Development (TAPD) LTR
- Non-LOCA Methods Development
- Fuels Development Program
- Core Analysis Code Verification and Validation (V&V)
- N-RELAP5 V&V
- Subchannel Analysis Code V&V
- Alternate Source Term Methods (additional LTR)

# LOCA PIRT LTR

- Requirements
  - 10 CFR 50.46
  - RG 1.203
- Purpose and Scope
  - Independent assessment of the relative importance of phenomena that may occur in the NuScale module during postulated LOCAs
  - Support development of detailed evaluation models for analysis of LOCAs

# LOCA Integral Scaling LTR

- Requirements
  - 10 CFR 50.46
  - RG 1.203
- Purpose and Scope
  - Scaling analysis of the NuScale integral test facility at Oregon State University
  - Describes the Dynamical System Scaling Method (DSSM)
  - Support development of detailed evaluation models for analysis of LOCAs

# LOCA TAPD LTR

- Requirements
  - 10 CFR 50.46
  - RG 1.203
- Purpose and Scope
  - LOCA developmental assessment base for code V&V. Covers integral, separate effects, and component testing plans
  - Support development of detailed evaluation models for analysis of LOCAs

# Non-LOCA Methods Development

- Requirements
  - RG 1.203
- Purpose and Scope
  - Non-LOCA methods development covering computer codes, V&V plans, and developmental assessment data for analyzing AOOs and select Postulated Accidents (e.g., main steam line break)

# Fuels Development Program

- Requirements
  - SRP 4.2
- Purpose and Scope
  - Fuels Development Program description that includes plans for design, analysis, testing, and manufacturing of nuclear fuel for reference in the NuScale DCD
  - Covers Safe Acceptable Fuel Design Limit (SAFDL) development, code V&V, analysis methods, test plans, and manufacturing specifications

# Core Analysis Code V&V

- Requirements
  - SRP 4.3
  - Level B Software Quality Assurance Procedures
- Purpose and Scope
  - Core design and analysis methods V&V report for the NuScale reactor
  - Includes description of codes and uncertainty assessment methods



# N-RELAP5 V&V

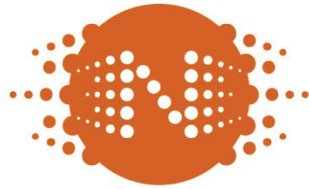
- Requirements
  - 10 CFR 50.46
  - RG 1.203
  - NuScale Level B Software Quality Assurance Procedures
- Purpose and Scope
  - V&V report of N-RELAP5 for LOCA, non-LOCA, and containment performance analyses

# Subchannel Analysis Code V&V

- Requirements
  - RG 1.203
  - NuScale Level B Software Quality Assurance Procedures
- Purpose and Scope
  - V&V report of SCANR for core design, fuels performance, and non-LOCA analyses

# Alternate Source Term Methods

- Requirements
  - RG 1.183
- Purpose and Scope
  - Description of the proposed deviations to the alternate source term method, taking into consideration:
    - no early release
    - multi-module effects
    - technical basis for a modernized emergency plan



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