



Application of an Enhanced Safety-Focused Review

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- Continuous improvement
- Safety-Focused Review for Light-Water Small Modular Reactors
- Application of Safety-Focused Review
 - Reduced Effort Review Example
 - Review Emphasis Example
- Safety-Focused Review for Non-Light-Water Reactors

- To be effective and efficient in our reviews, we need to ...
 - Incorporate lessons learned from previous reviews
 - Consider new strategies for future reviews

Safety-Focused Review: Light-Water Small Modular Reactors

- Enhanced safety-focused review
 - Align the review focus and resources to risk-significant structures, systems, and components and other aspects of the design that contribute most to safety
 - Standard Review Plan, NUREG-0800, Introduction – Part 2, Light-Water Small Module Reactors (issued January 2014)
 - Design Specific Review Standards (DSRSs)

Safety-Focused Review: Light-Water Small Modular Reactors

- DSRS incorporates current SRP sections or includes new review sections based on:
 - Technology differences
 - Risk information
 - Lessons learned from previous reviews
 - Interim staff guidance
- DSRS sections issued August 2016

Enhanced Safety-Focused Review: Graded Approach

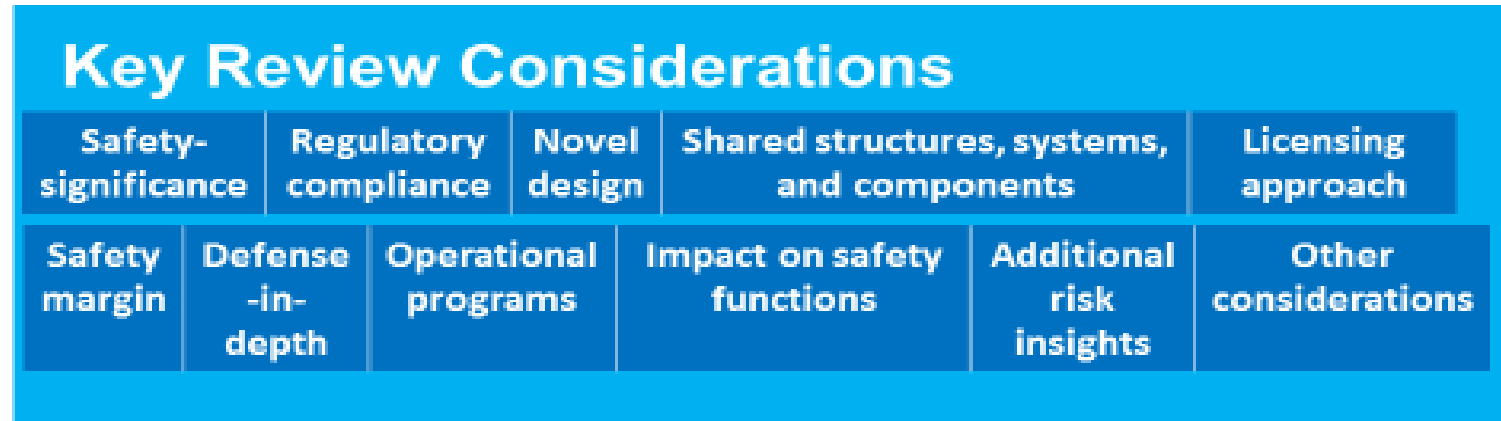
- **Safety-significance** of a structure, system or component (SSC) is determined by safety-related classification **and** risk-significance
- Safety-significance, along with other key considerations, guide the scope and depth of the review

Key Considerations

Enhanced Safety Focused Review: Key Considerations



Enhanced Safety-Focused Review



Review Tool




Output:

Scope and Depth of Review

- Provide supplemental approaches for implementation of NUREG-0800, Introduction - Part 2 and Design Specific Review Standard reviews
- Systematic thought process applicable to non-structure, system, or component and programmatic reviews

Application of Safety Focused Review (Review Emphasis Example)

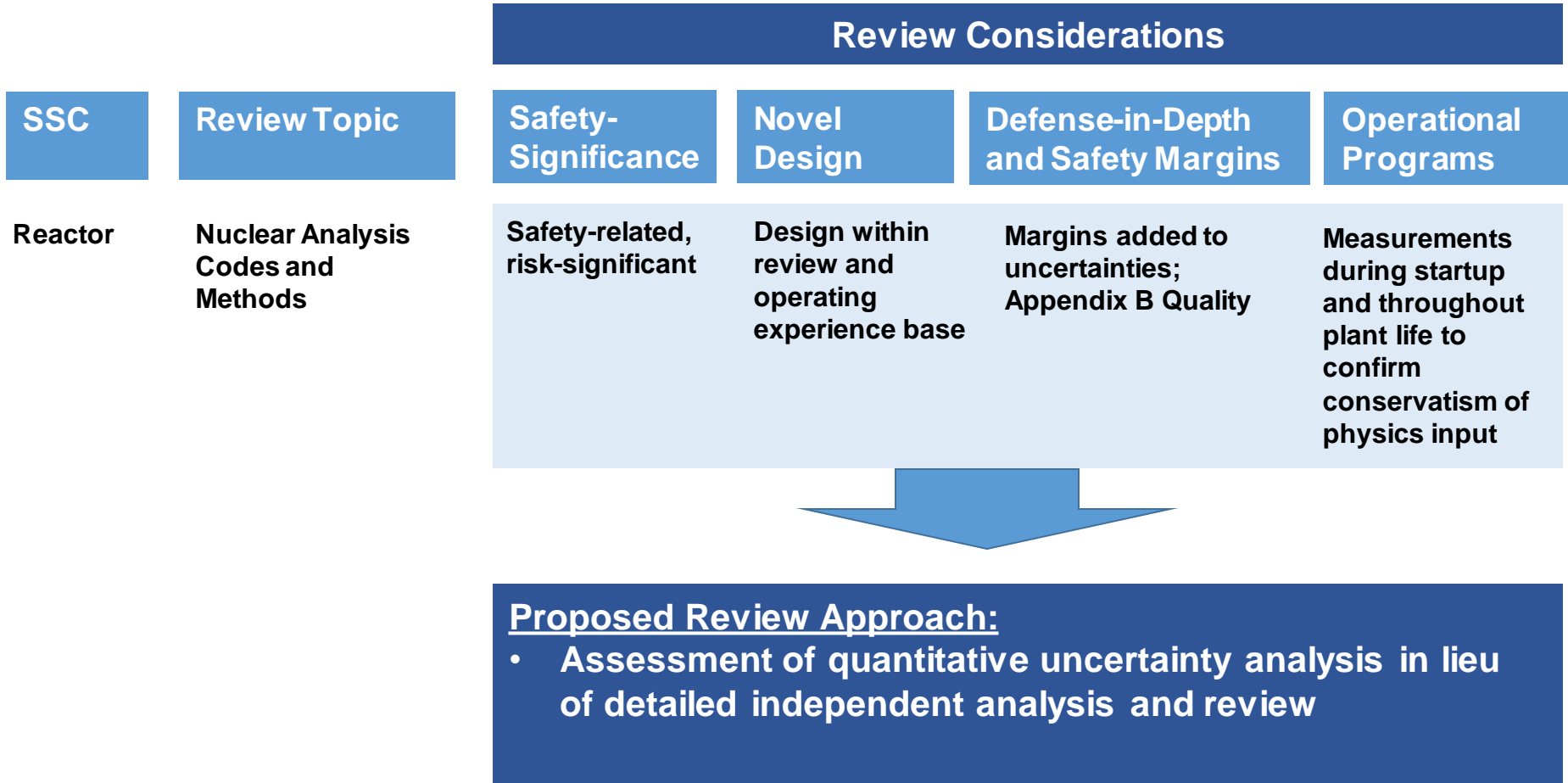
| | | Review Considerations | | |
|-------------|--------------------------------------|----------------------------------|--|---|
| SSC | Review Topic | Safety-significance | Novel Design | Defense-in-Depth and Safety Margins |
| Containment | Containment pressure and temperature | Safety-related, risk-significant | Design outside of review and operating experience base | Supports primary safety case to provide passive safety using fail-safe features |



Proposed Review Approach:
 Detailed review of design and analyses

- Perform independent confirmatory calculations
- In-depth assessment of test data

Application of Safety Focused Review (Reduced Effort Review Example)



Safety-Focused Review: Non-Light-Water Reactors

- Build from light-water small modular reactor review preparation
 - Use review tools to help focus pre-application activities
 - Consider how the safety-focused process could inform the scope and level of detail in the application

Summary

- NRC staff is implementing strategies to achieve more effective and efficient regulatory reviews
- NRC is committed to focus resources on safety-significant aspects of the non-light-water reactor reviews