

USNRC RIC 2017

## “Step-Wise” Regulatory Review Approach

March 14, 2017  
Session T1  
Advanced Reactors: NRC’s Readiness  
William Reckley, USNRC

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### Outline

- Licensing and design process
- Flexibility for design stages
- Interactions and outcomes
- Pre-licensing activities

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### Staged Licensing

Licensing-related interactions as part of product development, including possible business models with incremental funding

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- Regulatory interactions needed during all stages of process to support design, policy, and business decisions
- Advanced reactor designs at various stages of maturity or technology readiness levels
- Roadmap for interactions supporting range of decisions and stages of design

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### Flexible Approaches

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### Preapplication Interactions

Interactions & References	Outcomes
Meetings	Information Exchange
Correspondence	Initial Feedback
White Papers	Conditional Staff Finding
Technical Reports	Conclusive Staff Finding
Topical Reports	Final Agency Position
Codes and Standards	
Regulatory Guidance	
R&D Plans	
Preliminary Design Assessments	

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**Licensing Project Plans (Preapplication Phase)**

- Initial familiarization interactions
- Coupled licensing and review plans
  - Priorities for critical decisions
  - Resource and schedule constraints
  - Routine interactions, monitor, and adjust
- Developing important reference documents (e.g., topical reports, codes and standards)
- Research plans (e.g., test reactors, qualification testing)

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**Preliminary (preapplication) Design Assessments**

All or selected topics to support critical decisions

<ul style="list-style-type: none"> <li>• General Description</li> <li>• Site Characteristics</li> <li>• Design of SSCs and Reactor</li> <li>• Reactor Coolant and Connecting Systems</li> <li>• Engineered Safety Features</li> <li>• Instrumentation and Controls</li> <li>• Electric Power</li> <li>• Auxiliary Systems</li> <li>• Steam and Power Conversion System</li> <li>• Radioactive Waste Management</li> <li>• Radiation Protection</li> <li>• Conduct of Operations</li> <li>• Verification Programs</li> <li>• Transient and Accident Analyses</li> <li>• Technical Specifications</li> <li>• Quality Assurance and Reliability Assurance</li> <li>• Human Factors Engineering</li> <li>• Probabilistic Risk Assessment/Severe Accident Evaluation</li> </ul>	<p><b>RG 1.206 Chapters 1-19</b></p>	<ul style="list-style-type: none"> <li>• Emergency Planning</li> <li>• Security</li> <li>• Staffing</li> <li>• Mitigating Strategies</li> <li>• Aircraft Impact Assessment</li> <li>• Environmental Report</li> <li>• Financial</li> <li>• Inspections, Tests, Analyses, and Acceptance Criteria</li> <li>• Insurance</li> <li>• Fuel Cycle</li> <li>• Other (design or technology specific)</li> </ul>
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**Other Parts of Applications & Possible Issues**

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**Summary**

- NRC staff supporting preapplication interactions on generic, technology- and design-specific issues
- Flexible approaches to support critical decisions for designs at various stages of development
- Coupled licensing project and review plans useful for coordinating interactions and achieving goals

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