



# GENERIC LICENSING TOPICS & POLICY ISSUES RELATED TO SMALL MODULAR REACTORS

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# Staff Requirements – Use of Risk Insights for SMR Reviews

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# Risk Insights for SMR Reviews

Staff Requirements – COMGBJ-10-0004/COMGEA-10-0001 –  
Use of Risk Insights to Enhance Safety Focus of Small Modular  
Reactor Reviews (08/31/10)

- Purpose
- Paragraphs (a), (b), & (c) – iPWRs, “near-term”
  - ⊕ Risk insights framework / implementation strategy
  - ⊕ Review process efficiency – e.g., Standard Review Plan
  - ⊕ Design-specific review plans
- Paragraph (d)
  - ⊕ Other / neutral technology risk-informed framework
  - ⊕ “Longer-term”
- Paragraph (e) – other SECY-10-0034 issues
- Paragraph (f) – staff resources
- Paragraph (g) & (h) – engage industry & stakeholder

# Risk Insights for SMR Reviews

## iPWRs – near-term focus

- **Challenges**

- ⊕ “... enhance the efficiency of the review process.”
- ⊕ Risk insights to identify SSCs & design aspects
- ⊕ Risk insights applied to Standard Review Plan
- ⊕ Implement prior to receipt of DCD/FSAR and PRA
- ⊕ Other ...

- **Deliverables**

- ⊕ Framework/strategy “high-level” document
- ⊕ Review guidance – Standard Review Plan (NUREG-0800)
- ⊕ Safety Evaluation Report template
- ⊕ Design-specific review plans (activities/resources/schedule)

# iPWRs – Near-Term Focus

## Approach

- Consider holistic regulatory compliance
  - ⊕ Safety evaluation review/report
  - ⊕ Maintenance rule
  - ⊕ Technical Specifications
  - ⊕ Reliability Assurance Program
  - ⊕ Availability controls (RTNSS)
  - ⊕ ITAAC
  - ⊕ Startup test program
  - ⊕ Operational programs
  - ⊕ ...
- Consider alternative compliance
  - ⊕ Standards/codes applied to non-nuclear industries
  - ⊕ ...

## iPWRs – Near-Term Focus

### Approach (continued)

- Build upon pilot risk-insight initiative for LWR reviews
  - ⊕ Facilitate efficient/effective staff reviews
  - ⊕ Insights derived from DCD & PRA
  - ⊕ ESBWR, EPR, USAPWR
- Identify insights from passive-design LWRs
- Identify iPWR generic passive/simple characteristics
- Consider insights for application acceptance review
- Standard Review Plan
  - ⊕ Clarify review guidance
- Safety Evaluation Report template
  - ⊕ Clarify implementation of holistic regulatory compliance
- iPWRs – evaluate design-specific characteristics for risk insights

# iPWRs – Near-Term Focus

## Resources

- Staff working group – NRO & RES
- National laboratory technical assistance
- Industry / Stakeholder participation
- SMR workshops



# QUESTIONS ?





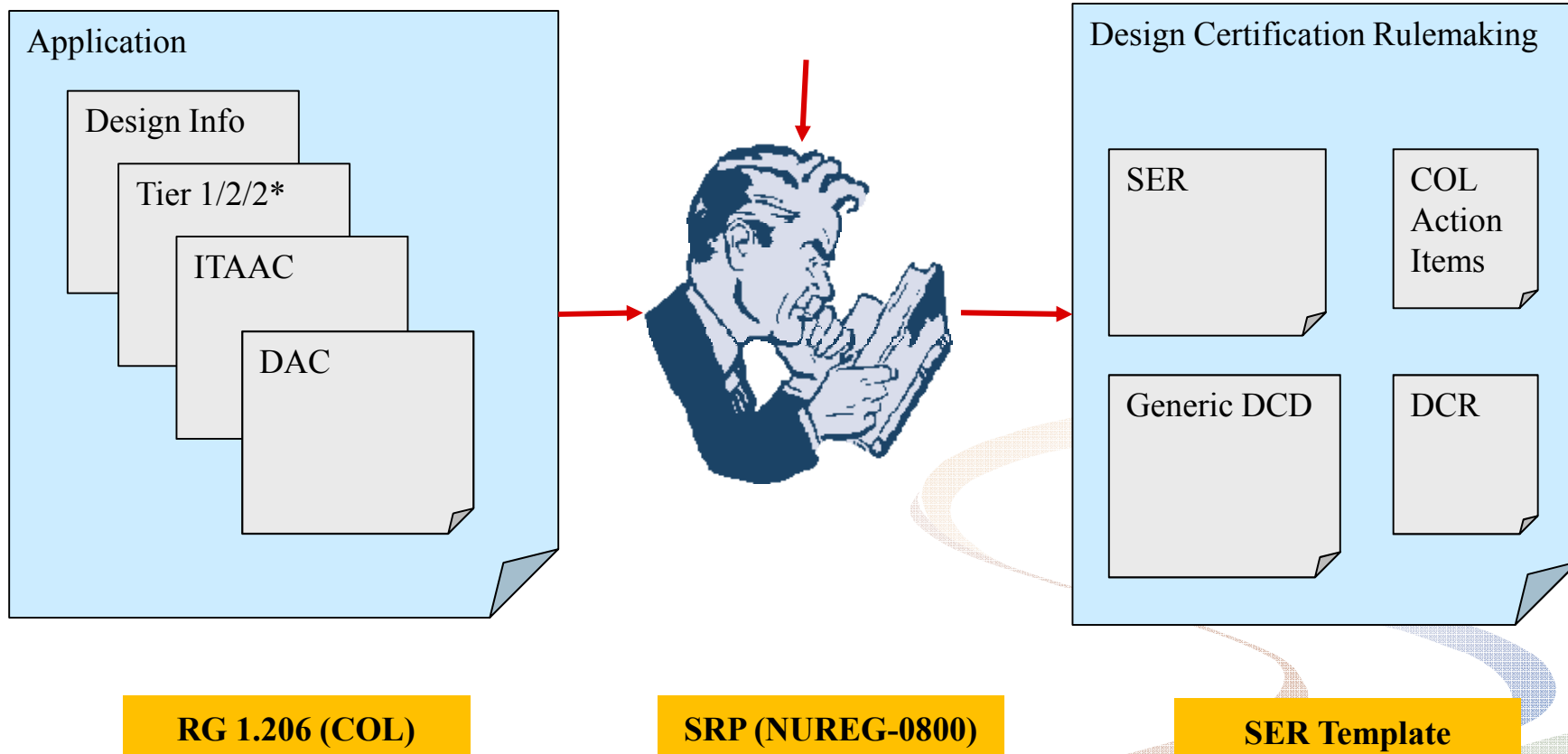
# Risk Insights for SMR Reviews

- Staff building on previous efforts
- General concept – graded approach
  - ⊕ Focus NRC review to safety significant items
  - ⊕ Improve efficiency of NRC review
- Considering more holistic approach
  - ⊕ Possible Considerations:
  - ⊕ Crediting other parts of review process, regulatory requirements (especially for lower risk significant systems)

# Optimizing Application

- Long Standing Challenge
  - ⊕ Matching information provided in application with that sought by NRC staff for performing review
- Information in applications:
  - ⊕ Scope
  - ⊕ Depth (level of detail)

# NRC Review



# Optimizing Application

- NRC staff framework to consider risk insights, improve efficiency for iPWR reviews
- Framework may include factors to guide review
- To improve efficiency of NRC review, application needs to address factors identified in framework
- Information located to support review

# Moving Forward

- Development of framework
  - ⊕ Internal discussions
  - ⊕ Consultation with national laboratories
- Discussions at future generic topics meetings
- Issuance of guidance
  - ⊕ (e.g., revised SRP, RG 1.206)
- Exchange of design and risk insights with designers
- Discussions of format and content during development of application

# Long Term Activities

- Assess lessons learned from efforts with iPWRs
- Continue discussions with NGNP regarding risk-informed licensing approaches
- Interactions with industry efforts
  - ⊕ ANS 53.1
  - ⊕ ANS 54.1
- Assess and develop risk-informed regulatory structure

# Risk Informed Licensing Approaches

## Discussions

