



# **Proposed Rule: Mitigation of Beyond-Design-Basis Events**

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**July 9, 2015**

# Speakers

- **William Dean, Director, Office of Nuclear Reactor Regulation**
- **Timothy Reed, Senior Project Manager, Division of Policy and Rulemaking**
- **John Monninger, Director, Division of Safety Systems and Risk Assessment, Office of New Reactors**
- **Eric Bowman, Special Advisor, Japan Lessons-Learned Division**

# Addresses Multiple Ongoing Post-Fukushima Actions

## Addresses NTTF Recommendations

- 4: Station Blackout Mitigation Strategies
- 7: Spent Fuel Pool Requirements
- 8: Integrated Response Capabilities
- 9 Enhanced Onsite Emergency Response (except long term ERDS)
- ERDS Modernization
- 10.2: Command and Control Structure and Qualifications
- 11.1 Enhanced Onsite Emergency Response Resources

## Consolidates Rulemakings

- Station Blackout Mitigations Strategies
- Enhanced Onsite Emergency Response Capabilities

## Makes Orders Generically Applicable

- Mitigation Strategies: EA-12-049
- Spent Fuel Pool Level: EA-12-051

## Addresses 50.54(f) Requests and Other Ongoing Actions

- Feedback from 2.1: Seismic and Flooding Reevaluation (for reasonable protection)
- Staffing and Communications capabilities
- Multi-Source Term Assessment

## Addresses Petitions for Rulemaking

- 50-97: EP Enhancements for Prolonged Station Blackout
- 50-98: EP Enhancements for Multiunit Events
- 50-100: Improve Spent Fuel Safety
- 50-101: Revise 10 CFR 50.63
- 50-102: Require More Realistic Training on SAMGs

# **Proposes New Requirements**

- **Holders of operating and combined licenses**
  - **SAMGs**
  - **Multi-source term requirements**
- **Unique provisions for new reactor designs**
  - **Applied during the design stage**

# **Centers on Integrated Response Capability**

- **Applicability to Power Reactors**
  - **Not applicable to RTRs or ISFSIs**
  - **Decommissioning provisions**
- **Integrate guideline sets with EOPs**
  - **Mitigating strategies (FLEX)**
  - **Extended Damage Mitigation Guidelines (EDMGs)**
  - **Severe Accident Management Guidelines (SAMGs)**
- **Supporting Equipment Requirements**

# **Ensures continued integrated response capabilities**

- **Supporting requirements assure continued capability:**
  - **Training requirements**
  - **Drills or Exercises**
  - **Change control**

# **Implementation is currently in progress**

- **Requirements of orders currently being implemented**
- **4-years following effective date unless otherwise specified**
- **Reevaluated hazard requirement would have a 2-year implementation period**

# **Enhances onsite emergency response capabilities**

- **Located in Part 50, Appendix E**
- **Multi-source term capabilities**
- **Staffing and communications capabilities**

# **Proposes new SAMG requirements**

- **Currently a voluntary industry initiative**
- **Improve effectiveness of SAMGs and address implementation inconsistencies**
- **Backfit justification 50.109(a)(3)**
  - **Combination of quantitative risk-insights and qualitative factors**

# **Opportunities Exist for New Reactors**

- **Proposed requirements apply to new reactors**
- **Advanced Reactors Policy**
  - **Simplify means to accomplish safety functions**
  - **Extend time constants**
  - **Reduce required operator actions**

# **Leverages the Design Stage**

- **Added design requirements (50.155(d))**
- **Accomplish the same safety functions, with an upfront focus on installed capabilities**
- **Established expectations for capabilities**

# **Considering Implications for New Reactors**

- **Applying new reactor provisions in parallel with rulemaking**
- **Stakeholder outreach and potential impacts**
- **Diverse views including non-concurrence**

# **DG-1301 would endorse industry guidance**

- **Alternatives/lessons learned**
- **NEI 12-06 Appendices for reevaluated hazards**
- **Appendix A for New Reactor Design Features**

# **Reasonable protection**

- **Appendix G – Flooding**
- **Appendix H – Seismic**
- **Targeted Hazard Mitigating Strategies**
- **Alternative Mitigating Strategies**
- **Interim Staff Guidance Update**

# **DG-1317 and DG-1319**

- **NEI 12-02 – SFP Instrumentation**
- **NEI 12-01 – staffing & communications**
- **NEI 13-06 – on-site emergency response enhancements**
- **NEI 14-01 – integration, SAMGs, and command and control**

# Summary

- **Proposed rule makes previously issued orders generically applicable**
- **Safety benefits being realized from order implementation**
- **New requirements justified by comprehensive and transparent rationale**

# Acronyms

**ACRS – Advisory Committee on Reactor Safeguards**

**ANPR – Advance Notice of Proposed Rulemaking**

**CER – Cumulative Effects of Regulation**

**CFR – Code of Federal Regulations**

**CPRR – Containment Protection and Release Reduction**

**DG – Draft Regulatory Guide**

**DID – Defense-in-Depth**

**EDMGs – Extensive Damage Mitigation Guidelines**

**EOPs – Emergency Operating Procedures**

**EP – Emergency Preparedness**

**ESBWR – Economic Simplified Boiling Water Reactor**

**FSGs – FLEX Support Guidelines**

**ISFSI – Independent Spent Fuel Storage Installation**

**ISG – Interim Staff Guidance**

**JLD – Japan Lessons Learned Division**

**MBDBE – Mitigation of Beyond-Design-Basis Events**

**NEI – Nuclear Energy Institute**

# **Acronyms (continued)**

**NEI – Nuclear Energy Institute**  
**NRC – Nuclear Regulatory Commission**  
**NRO – Office of New Reactors**  
**NRR – Office of Nuclear Reactor Regulation**  
**NTTF – Near-Term Task Force**  
**RFI – Request for Information**  
**RG – Regulatory Guide**  
**RTR – Research and Test Reactor**  
**SAMG – Severe Accident Management Guidelines**  
**SFP – Spent Fuel Pool**  
**SOARCA – State-of-the-Art Reactor Consequence Analysis**  
**SRM – Staff Requirements Memorandum**  
**TI – Temporary Instruction**