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Impact on New Builds due to Japan Earthquake and Tsunami

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Overview

- NRC Near-Term Task Force Summary of Recommendations
- Impact on New Builds
- NRC Bulletin 2011
- Q and A

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Current U.S. Plant Safety

- Similar sequence of events in the U.S. is unlikely
- Existing mitigation measures could reduce the likelihood of core damage and radiological releases
- No imminent risk from continued operation and licensing activities

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Task Force Conclusions

- A more balanced application of defense-in-depth supported by risk insights would provide:
  - Coherent regulatory framework
  - Systematic approach to low likelihood, high consequence events
  - Basis for redefining the level of protection regarded as adequate

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Focus Areas

- Regulatory framework
- Defense-in-depth philosophy
  - Protection from natural phenomena
  - Mitigation for long-term station blackout (SBO)
  - Emergency preparedness (EP)
- NRC programs

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Recommendation 1

Enhance NRC framework for regulating beyond design basis events and severe accidents

- Commission policy statement
  - Risk-informed defense-in-depth framework
  - Extended design-basis requirements
  - Adequate protection
- Rulemaking
  - Implement proposed framework
- Modify NRC's Regulatory Analysis Guidelines
  - More effectively implement defense-in-depth

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Recommendation 1

- Staff evaluate insights from risk studies
  - Individual Plant Evaluation (IPE)
  - Individual Plant Evaluation External Events (IPEEE)
  - Identify potential generic regulations and plant-specific requirements

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Recommendation 2

Update seismic and flooding analysis and protect plants from these events

- Order licensees to reevaluate seismic and flooding hazards at their sites
  - Use current NRC requirements and guidance
  - Upgrade plant design, as necessary, to protect against the updated hazards
- Rulemaking
  - require confirmation of seismic and flooding hazards every 10 years
- Order for Interim action
  - licensees perform seismic and flood protection walkdowns
  - identify and address plant-specific vulnerabilities

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Recommendation 3

Evaluate potential enhancements to prevent or mitigate seismically induced fires and internal floods

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Recommendation 4

Strengthen coping for prolonged station blackout events

- Rulemaking
  - Require minimum coping time of 8 hours
    - Permanently installed equipment
    - Minimal operator actions
  - Require 72-hour extended coping
    - Portable equipment may be used
    - Reasonable operator actions
  - Require preplanned offsite resources
    - Uninterrupted safety functions

- Order for interim action
  - Availability of existing mitigation equipment
    - Require reasonable protection from natural phenomena
    - Require capacity for multiunit events

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Recommendation 5

Require reliable hardened vent designs in BWRs with Mark I and Mark II containments

- Order licensees to include a reliable hardened vent in BWR Mark I and Mark II containments.
  - Include performance objectives to ensure reliable operation
  - Ease of opening and closing during prolonged SBO conditions

- Reevaluate the need for hardened vents for other containment designs.

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Recommendation 6

Identify insights about hydrogen control and mitigation inside containment or in other buildings

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Recommendation 7

Enhance spent fuel pool instrumentation and makeup capability

- Order licensees to provide safety-related instrumentation to monitor key spent fuel pool parameters from control room
  - Water level
  - Temperature
  - Area radiation levels

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Recommendation 7

- Order licensees to:
  - Provide safety-related ac electrical power for the spent fuel pool makeup system
  - Revise Technical Specifications
    - One train of onsite emergency electrical power operable
      - Spent fuel pool makeup and instrumentation
      - All modes of operation and defueled

- Order licensees to have seismically qualified means to spray water into the spent fuel pools
  - easily accessible connection to supply the water at grade from outside the building

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Recommendation 7

- Rulemaking
  - Spent Fuel pool Instrumentation
  - Spent Fuel makeup power supply
  - Technical Specification for Spent Fuel pool makeup and power supply
  - Spent Fuel pool spray capability

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Recommendation 8

Strengthen and integrate onsite emergency response capabilities

- Order licensees to modify the EOP technical guidelines
  - Include EOPs, SAMGs, and EDMGs in an integrated manner
  - Specify clear command and control strategies for their implementation
  - Stipulate appropriate qualification and training for decisionmakers
  - Include in revised EOP guidelines in Technical Specifications

- Rulemaking
  - Require more realistic, hands-on training and exercises for SAMGs and EDMGs
    - Operators and emergency responders
    - Emergency coordinators
    - Emergency directors

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Recommendation 9

Require that facility emergency plans address prolonged SBO and multiunit events

- Rulemaking
  - Require emergency preparedness (EP) enhancements for prolonged SBO and multiunit events in the following areas:
    - Communications capability
    - ERDS capability
    - Training and exercises
    - Equipment and facilities

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Recommendation 9

- Order for interim action:
  - Require licensees to address EP for prolonged SBO and multiunit events
    - Staffing
    - Multiunit dose assessment
    - Power for communications equipment
    - Enhance facilities and equipment
  - Require licensees complete modernization of Emergency Response Data System (ERDs)

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Recommendation 10

Additional EP topics related to multiunit events and prolonged SBO

- Protective equipment for emergency responders
- Decisionmaker qualifications
- Command and control
- Emergency Response Data System (ERDs)

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Recommendation 11

Additional emergency preparedness issues

- Offsite emergency response
- EP decisionmaking
- Radiation monitoring
- Public education on radiation safety and use of potassium iodide (KI)

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Recommendation 12

Strengthen regulatory oversight of licensee safety performance (ROP) by focusing more attention on defense-indepth requirements

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New Reactor Design Certification Reviews

- **AP1000 amendment and ESBWR**
  - Proceed with design certification (DC) rulemaking
  - Combined license (COL) licensees confirm recommendations 4 and 7 (SBO and spent fuel pool)
- **ABWR renewal, EPR, and APWR**
  - Apply recommendations 4 and 7 before DC rulemaking

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New Reactor Combined License Reviews

- **South Texas Project**
  - Complete ABWR DC amendment rulemaking
  - Implement recommendations 4 and 7 during COL review before licensing
- **All near-term COLs**
  - Implement recommendations 8 and 9 (emergency procedures, EP) before operation

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Operating License Reviews

- **Watts Bar 2 and Bellefonte 1 operating license applications**

  - Implement recommendations 2 (seismic and flooding design basis), 4, 7, 8, and 9 before issuing the operating license

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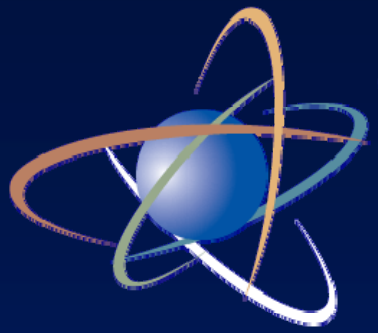
NRC BULLETIN 2011-01: MITIGATING STRATEGIES

- Require that addressees provide a comprehensive verification of their compliance with the regulatory requirements of Title 10 of the *Code of Federal Regulations (10 CFR) Section* 50.54(hh)(2),

- Notify addressees about the NRC staff's need for information associated with licensee mitigating strategies under 10 CFR 50.54(hh)(2) in light of the recent events at Japan's Fukushima Daiichi facility in order to determine if 1) additional assessment of program implementation is needed, 2) the current inspection program should be enhanced, or 3) further regulatory action is warranted, and

- Require that addressees provide a written response to the NRC in accordance with 10 CFR 50.54(f).



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Questions ??