

A Commissioner's Perspective on USNRC Actions in Response to the Fukushima Nuclear Accident

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Agenda

- NRC post-Fukushima Actions
 - Adequate Protection Standard
 - Regulatory Approach and Action Details
 - Important Decisions on the Horizon

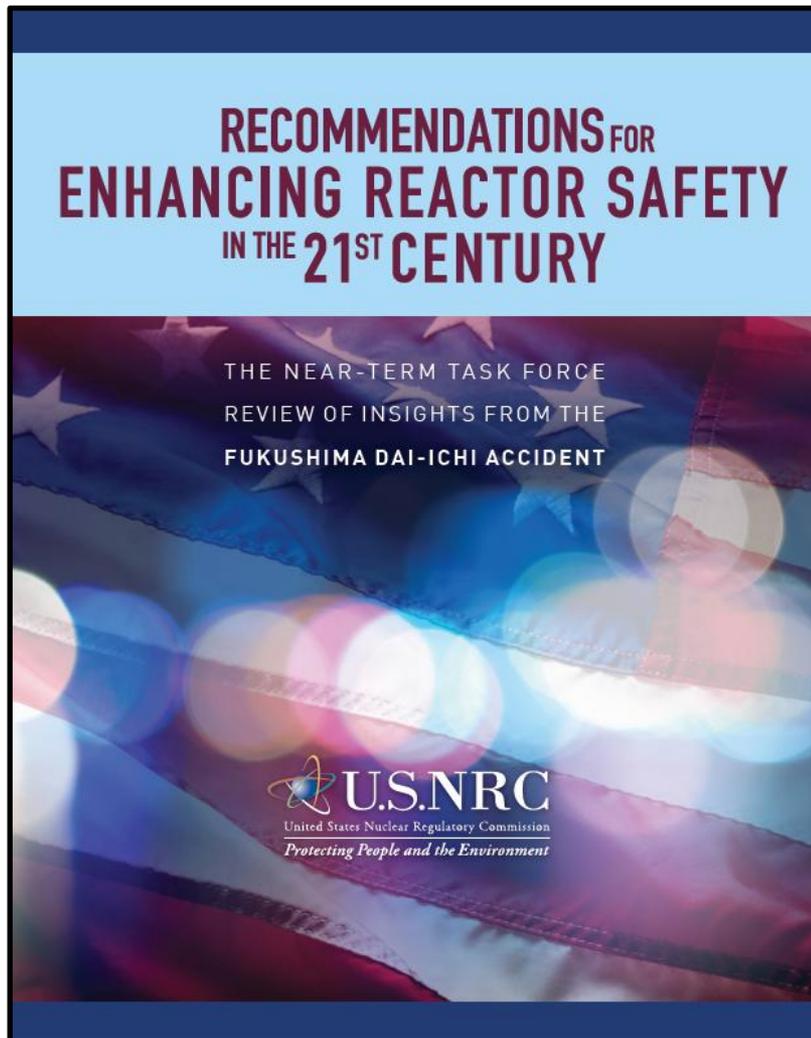
Regulatory Standard

- Reasonable assurance of ***adequate protection*** of public health and safety
 - Derived from Atomic Energy Act and case law
- General principles
 - NRC has broad authority
 - Nexus to radiological health and safety
 - Objective criteria not required – case-by-case basis
 - Does NOT mean zero risk
- ***“How safe is safe enough?”***

Near-Term Task Force

SECY-11-0093

(July 12, 2011)



- Continued operation and licensing do not pose an imminent risk to safety.
- Task Force conclusion reinforced decision that there was **no need** to shut down plants in the wake of Fukushima.

Near-Term Task Force

SECY-11-0093

(July 12, 2011)

Key Lessons Learned

- External hazard design
 - Seismic and flooding
- Prolonged loss of AC power
 - “Station Blackout” (SBO) coping
- Reliable containment venting
 - Boiling water reactors (BWRs)
- Multi-unit events
- Spent fuel pools



Near-Term Task Force

SRM-SECY-11-0093

(Aug. 19, 2011)

Commission's Big Picture Approach



- Implement certain recommendations without delay
- Integrated and prioritized assessment of other recommendations
- Senior level steering committee oversight of implementation details

Actions to Take w/o Delay

SRM-SECY-11-0124

(Oct. 18, 2011)

The “21-Day” Paper

- Strive to complete and implement Fukushima lessons learned within 5 years – by 2016
- Implementation should be transparent; regulatory mechanisms should be clear and specific
- Performance-based system should be a guiding principle
- SBO Rulemaking – high-priority (24-30 mo.)

Prioritized Assessment

SRM SECY-11-0137

(Dec. 15, 2011)

The “45-Day” Paper

- Three-tiered approach:
 1. Actions without delay plus hardened vents for Mark II BWRs and spent fuel pool instrumentation
 2. Further information needed, but no longer term study needed
 3. Longer term study necessary

Tier 1 Actions

Regulatory Actions Taken in 2012

▪ **Orders (March 2012)**

- EA-12-049 – Mitigating strategies beyond design basis events
- EA-12-050 – Hardened vents for Mark I and II containments
- EA-12-051 – Spent fuel pool instrumentation

▪ **Requests for Information (March 2012)**

- Seismic and flooding walkdowns
- Seismic and flooding reevaluations
- Enhanced EP staffing and communications

▪ **Rulemaking Initiation (April 2012)**

- Station blackout (SBO)
- Integration of emergency procedures

Order EA-12-049

Adequate Protection Based

Mitigating Strategies for Beyond Design Basis External Events

- Requires a three-phase approach for maintaining or restoring core cooling, containment, and spent fuel cooling

Phase	Licensee may use
Initial	Installed equipment
Transition	Portable, onsite equipment
Final	Resources obtained from offsite

Order EA-12-050

Adequate Protection Based

Reliable Hardened Vents at Boiling Water Reactors (BWRs)

- Applicable to BWR Mark I and Mark II containments
- Control containment pressure by removing heat if normal capability is lost
- Prevention of core damage
- Must be able to function under SBO conditions
- Recommendation on filtration of vents proposed to be presented to Commission in November

Order EA-12-051

Administrative Exemption from Backfit Rule

Enhanced Spent Fuel Pool Instrumentation

- Requires licensees to install level instruments to indicate the following levels:
 - Normal fuel pool level
 - Below-normal level that still provides radiation shielding for access to the operating deck
 - Near top of fuel racks, where immediate action to add make up water should be implemented

Requests for Information (10 CFR 50.54(f))

- The NRC requested licensees to:
 - Confirm each plant is in compliance with its seismic and flooding design bases
 - Analyze each plant's seismic and flooding hazards
 - Assess emergency communications
 - Assess the staffing necessary to respond to a prolonged multiple unit SBO event

Rulemaking Activities

- **Station Blackout (SBO)**
 - Modify the SBO rule to require enhanced capability to mitigate a prolonged SBO
 - Accelerated schedule – 2 ½ years (2014)
- **Emergency Procedures Integration**
 - Create a new rule requiring the integration of emergency procedures
 - Scheduled completion 2016

Tier 2 Recommendations

- Spent fuel pool makeup capability
- Emergency preparedness (for prolonged events)
- Reevaluation of other external hazards (other than seismic and flooding)

Tier 3 Recommendations – (Examples)

- 2.2 Ten-year confirmation of seismic and flooding hazards
- 6 Hydrogen control and mitigation inside containment or in other buildings
- 12.2 Staff training on severe accidents and resident inspector training on Severe Accident Management Guidelines
- Pre-stage potassium iodide beyond 10 miles

Important Decisions on the Horizon

- SECY paper on economic consequences
- SECY paper on filtered containment vents
- SECY paper on Near-Term Task Force Recommendation 1 (2013)

Conclusions

- NRC is moving forward to implement safety enhancements at U.S. plants
- No imminent risk from continued operation of U.S. nuclear power plants
- NRC is engaged in development of lessons learned with the international community
- NRC continues to evaluate additional lessons learned for applicability to U.S. plants

Thank You

Questions

Comments

Discussion