



Recent NRC Actions Involving Spent Nuclear Fuel Storage

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Background

- March 11, 2011 earthquake
 - Reactor Units 1, 2, 6 safely shut down
 - Loss of offsite power
- Tsunami
 - Loss of emergency AC power
 - Extended Station Blackout
 - Loss of coolant flow
- Incomplete information on event sequences affecting spent fuel pool performance and radionuclide releases

NRC Actions To Date

- Monitoring and advice
- Information Notice 2011-05
 - Effects on Japanese nuclear power plants
- Temporary Instruction 2515/183
 - Extensive damage mitigation guidelines
 - Station blackout
 - Seismic and flooding
- Temporary Instruction 2515/184
 - Severe accident management guidelines

NRC Actions (cont.)

- Bulletin 2011-01 (5/11/11) to licensees
 - Comprehensive verification of requirements for mitigating large explosions or fires
- Within 30 days, verify
 - Equipment is available and can function as intended
 - Staff are appropriately trained and available
- Within 60 days, answer questions on
 - Maintenance, testing, and availability of equipment relied on for mitigation
 - Updates of guidance for mitigation strategies
 - Availability of offsite support

NRC Task Force

- The Commission established a Task Force on March 23 to:
 - Review available information on the events in Japan
 - Evaluate NRC regulatory requirements, programs, and processes, and their implementation
 - Recommend near-term actions
 - Identify a framework and topics for longer-term review

Task Force Charter

- NRC Task Force will independently
 - Study the events at Fukushima
 - Identify relevant and important topics for application to U.S. reactors
 - Consult with agency experts
 - Interact with domestic and international stakeholders
 - Identify a framework and topics for review and assessment of a longer-term effort
 - Formulate recommendations and provide to the Commission via a July 2011 report

Review Approach

- Systematic and methodical
 - Including insights from past lessons-learned efforts, such as Three Mile Island
- Defense-in-depth approach
- Task Force will review:
 - Protection from natural phenomena
 - Mitigation for long-term station blackout; including single or multiple unit events
 - Emergency preparedness
 - Implications for NRC programs

Protection from Natural Phenomena

- Evaluation of the design basis and safety margins for seismic and flooding events
- Evaluation of external challenges that could lead to station blackout
 - Seismic
 - Tsunami
 - Other flooding events (i.e., hurricanes [storm surge], dam failures, precipitation, internal flooding)
- Survivability of emergency AC power during beyond design basis external events

Mitigation for Long-Term Station Blackout

- Strategies for mitigating consequences of long-term station blackout; including single or multiple-unit events, to:
 - Prevent core damage
 - Prevent fuel damage in the spent fuel pool
 - Prevent containment failure and releases
 - Prevent or mitigate releases from the spent fuel pool
- Personnel availability, effectiveness, and protection – procedures and training

- Heat removal capability (water and air cooling)
- Enhancing air coolability by relocating spent fuel
- Instrumentation availability
- Emergency Operating Procedures, Severe Accident Mitigation Guidelines, Extensive Damage Mitigation Guidelines

- Filtration, monitoring, scrubbing releases
- Hydrogen control measures
- Pressure control in secondary containments and spent fuel pool buildings
- Instrumentation availability
- Emergency Operating Procedures, Severe Accident Mitigation Guidelines, Extensive Damage Mitigation Guidelines

Current Assessment

- To date the Task Force has not identified any issues that undermine our confidence in the continued safety and emergency planning of U.S. plants
- Task Force review is likely to recommend actions to enhance safety and preparedness

Next Steps

- Evaluate results from Temporary Instructions 2515/183 and /184
- Commission Meetings
 - June 16, 2011 status briefing
 - July 19, 2011 final briefing
- Near-term Task Force report to be made public in July 2011
- Additional actions to be identified for a longer-term effort