



FUKUSHIMA LESSONS LEARNED REVIEW

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U.S. NUCLEAR REGULATORY COMMISSION



FUKUSHIMA SEQUENCE OF EVENTS



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NRC Response



- Monitoring Mode
- Japan site team
- Near Term Task Force

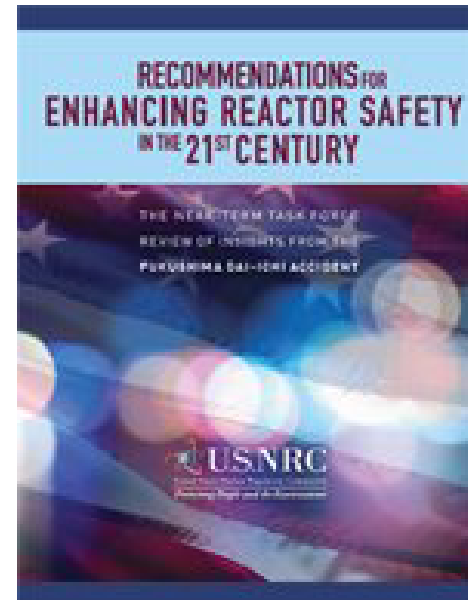
Near Term Task Force - Conclusions

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



Task Force Recommendations

- Two recommendations for action to enhance NRC programs
- Six recommendations for industry action to enhance safety
- Four recommendations for NRC longer-term study



Task Force Recommendations

- The six industry actions address
 - ▣ Seismic and Flooding protection
 - ▣ Prolonged Loss of AC Power
 - ▣ Containment Venting
 - ▣ Spent Fuel Pool Cooling
 - ▣ Severe Accident Procedures
 - ▣ Emergency Preparedness



Task Force Recommendations

- Require licensees to reevaluate and upgrade as necessary the design-basis seismic and flooding protection of systems, structures, and components.



Task Force Recommendations

- Strengthen station blackout mitigation capability for design-basis and beyond-design-basis external events



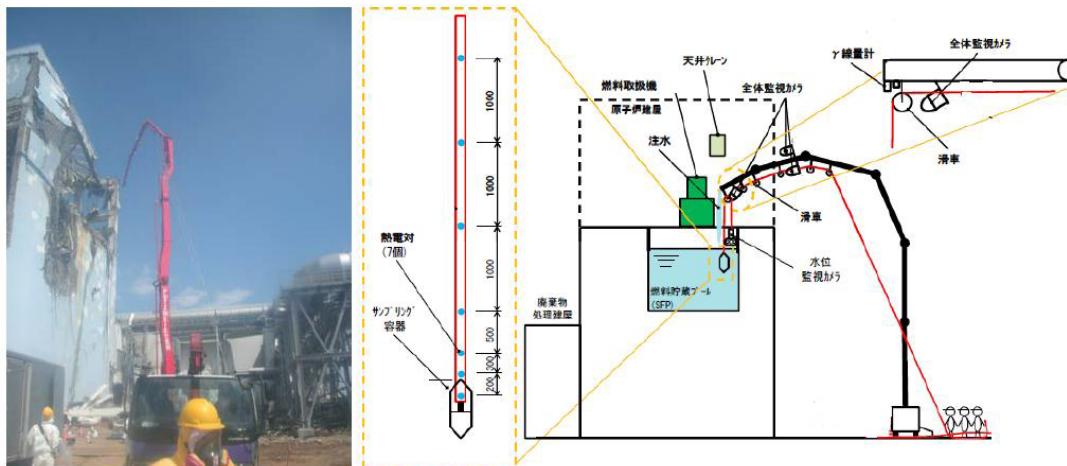
Task Force Recommendations

- Require reliable hardened vent designs in BWR facilities with Mark I and Mark II containments



Task Force Recommendations

- Enhance spent fuel pool makeup capability and instrumentation



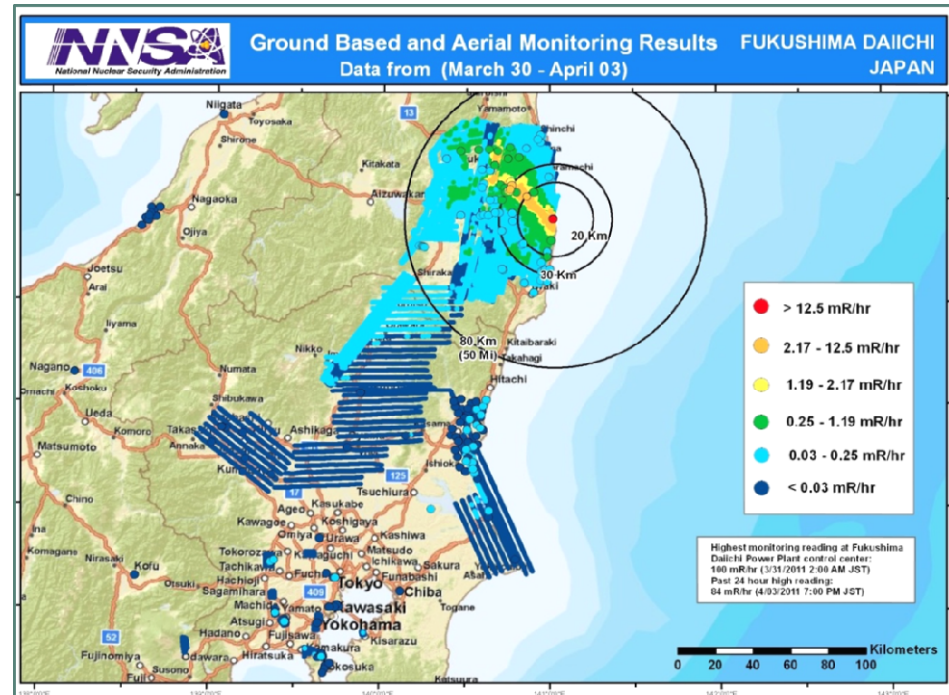
Task Force Recommendations

- Strengthen and integrate onsite emergency response capabilities
 - ▣ Emergency operating procedures
 - ▣ Severe accident management guidelines
 - ▣ Extensive damage mitigation guidelines



Task Force Recommendations

- Require that facility emergency plans address prolonged SBO and multi-unit events



Task Force Recommendations

- Longer Term Review Topics
 - ▣ Potential enhancements to prevent or mitigate fires/floods
 - ▣ Hydrogen control/mitigation inside containment and other buildings
 - ▣ EP for multi-unit events and prolonged SBO
 - ▣ EP enhancements related to decision-making, radiation monitoring, education

NTTF SUMMARY

- Twelve over-arching recommendations
- Detailed recommendations support implementation
 - Near-term and interim actions
 - Rulemaking
 - Longer-term evaluations topics

Current Status of NTTF

16

Recommendations

- The Commission asked the staff to provide a 21-day report stating which of the recommendations can and should be implemented without unnecessary delay
- This was transmitted to the Commission on September 12, 2011
- The staff will provide a report soon that prioritizes the Near-Term Task Force Recommendations (45 day paper)

Interim Actions



- The near-term actions identified are the following:
 - ▣ Seismic and flood hazard reevaluations
 - ▣ Seismic and flood walkdowns
 - ▣ Station blackout regulatory actions
 - ▣ Equipment covered under Title 10 of the *Code of Federal Regulations* §§ 50.54(hh)(2)
 - ▣ Reliable hardened vents for Mark I containments
 - ▣ Strengthening and integration
 - emergency operating procedures
 - severe accident management guidelines
 - extensive damage mitigation guidelines

Next Steps



- Implementation Plan due October 3, 2011
 - ▣ Reflect regulatory actions
 - ▣ Implementation challenges
 - ▣ Technical and regulatory basis
 - ▣ Additional recommendations
 - ▣ Schedule and milestones for stakeholder engagement and Advisory Committee on Reactor Safeguards review

Summary

- No imminent risk from continued operation and continued licensing activities
- NRC's regulatory framework could be enhanced
- Additional requirements and nuclear power plant improvements for low probability, high consequence events, would reduce risk even further



QUESTIONS?
COMMENTS?