U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

FUKUSHIMA DAIICHI NRC NEAR TERM TASK FORCE

Presented to: Waste Management Symposia
By: Dr. Charles L. Miller

Phoenix, AZ
February 2012

NRC RESPONSE

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

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

NRC INSPECTION ACTIVITIES

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

- **Temporary Instruction 2515/183, "Follow-up to the Fukushima Daiichi Nuclear Station Fuel Damage Event" uses a combination of assessment of licensee actions and independent inspections**

- **Temporary Instruction 2515/184, "Availability and Readiness Inspection of Severe Accident Management Guidelines (SAMGs)"To determine that the SAMGs are available and assess how they are being implemented**
  - To determine the nature and extent of licensee implementation of SAMG training and exercises

INSPECTION RESULTS FOR TI 2515/183

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

- Inspections completed in April 2011
- The inspection reports and a summary of the findings are available on NRC's web site
- Observations "indicate a potential industry trend of failure to maintain equipment and strategies required to mitigate some design and beyond design basis events"
- However, "no functions were compromised that would have resulted in damage to the fuel elements or containment"

Near Term Task Force - Conclusions

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

- 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

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

- 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

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

- **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

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

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

TASK FORCE RECOMMENDATIONS

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

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

TASK FORCE RECOMMENDATIONS

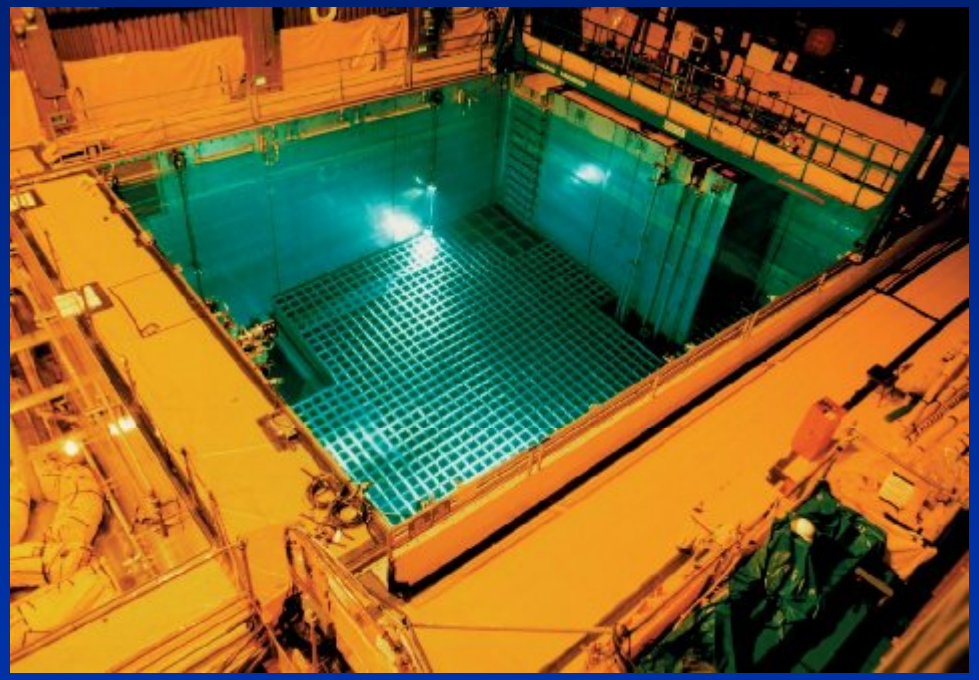
U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

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

TASK FORCE RECOMMENDATIONS

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

- **Enhance spent fuel pool makeup capability and instrumentation**



TASK FORCE RECOMMENDATIONS

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

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

TASK FORCE RECOMMENDATIONS

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

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

TASK FORCE RECOMMENDATIONS

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

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

NTTF - Recommendations

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

- **Twelve over-arching recommendations**

- **Detailed recommendations support implementation**
  - Near-term and interim actions
  - Rulemaking
  - Longer-term evaluations topics

SUMMARY

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

- 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

INSIGHTS

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

- Importance of competent, independent regulatory body
- Importance of site selection and characterization
- Importance of design features to cope with site hazards
- Modern reactor designs with enhanced safety features
- Accident management and emergency response