



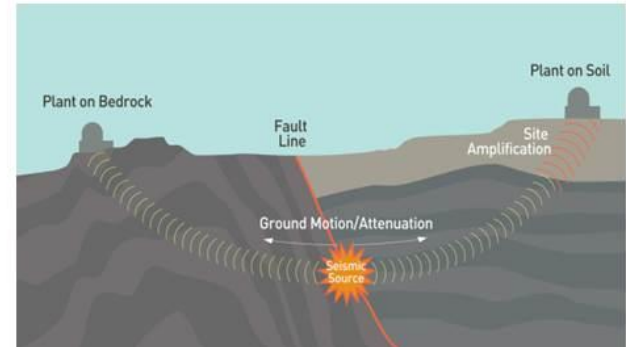
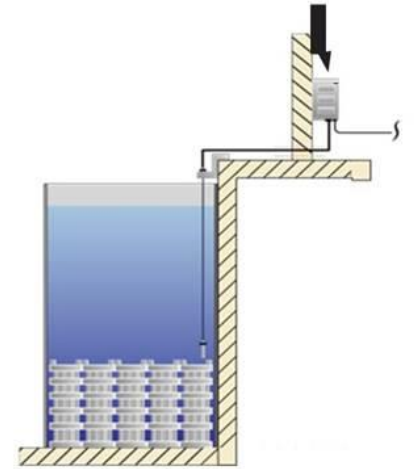
Status of Lessons Learned from Fukushima Dai-ichi

Michael Johnson

**Deputy Executive Director for Reactor
and Preparedness Programs**

July 31, 2014

Enhanced Reactor Safety



NRC Prioritized Actions Based on Guiding Principles

- Do not distract from safety
- Disciplined screening of additional issues
- Do not displace more safety significant work
- Do it right the first time
- Sound basis for decisions

Presenters

- Jennifer Uhle, Deputy Director, Office of Nuclear Reactor Regulation (NRR)
- Jack Davis, Deputy Director, Japan Lessons-Learned Division (JLD), NRR
- David Skeen, Director, JLD, NRR
- Cynthia Pederson, Regional Administrator, Region-III

Significant Progress Has Been Made

- Implementation is a multistep process
 - Identify, gather information, and assess
 - Deliberate and decide
 - Regulatory action
 - Licensee actions
 - NRC inspection
- Some recommendations have been fully dispositioned, but most are in progress

Significant Activities Completed

- 63 Interim Staff Evaluations issued
- Seismic and flooding hazard walkdowns
- Evaluation of Recommendation 1
- Evaluation of expedited transfer of spent fuel

New Organization Optimized for Efficiency

Office of Nuclear Reactor Regulation

Japan Lessons-Learned Division

Program Management,
Policy, & Support
Directorate

Technical Support
Directorate

Orders
Management
Branch




Hazards
Management
Branch
















Policy &
Support
Branch

Electric &
Reactor
Systems
Branch




Containment
& Balance of
Plant Branch































Progress on Tier 1 Activities

-  Completed
-  In Progress
-  Scheduled/Active Planning

	Identify, Gather Information & Assess	Deliberate & Decide	Regulatory Action	Licensee Actions	NRC Inspection
Station Blackout Mitigating Strategies Order (Order EA-12-049)					
Spent Fuel Pool Instrumentation Order (Order EA-12-051)					
Severe Accident Capable Hardened Vents Order (Order EA-13-109)					

Progress on Tier 1 Activities, cont'd

-  Completed
-  In Progress
-  Scheduled/Active Planning

	Assess Information & Identify, Gather	Deliberate & Decide	Regulatory Action	Licensee Actions	NRC Inspection
Reevaluate seismic and flooding hazards (Rec. 2.1)					
Perform seismic and flood protection walkdowns (Rec. 2.3)					
Station Blackout Mitigating Strategies Rulemaking (Rec. 4.1)					
Onsite Emergency Response Capabilities Rulemaking (Rec. 8)					
Staffing and Communications (Rec. 9.3, partial)					
Complete the Emergency Response Data System modernization initiative (Rec. 9.4)					
Filtration and Confinement Strategies Rulemaking (Additional Issue)					

Status – Mitigating Strategies

- Ongoing staff review of licensee progress
 - Issued Interim Staff Evaluations (February 2014)
 - Electronic and onsite audits continuing
- Safety Evaluations
 - Issued after all units at site reach compliance
 - Watts Bar will be first compliant site (Fall 2014)
- Industry Response Centers
 - NRC staff reviewing/evaluating
 - Proof of concept activities
 - NRC report (September 2014)

Status – Spent Fuel Pool Instrumentation

- Staff review merged with Mitigating Strategies
 - Vendor audits complete
 - Remote and onsite licensee reviews
- Licensees on track to meet compliance dates
- Staff conclusions will be documented in Safety Evaluation with Mitigating Strategies

Status – Severe Accident Capable Hardened Vents

- Phase 1 (Wetwell Vent)
 - Integrated plans submitted June 30, 2014
 - Issue Interim Staff Evaluation based on compliance
- Phase 2 (Drywell Vent)
 - Drywell vent or strategy making venting unnecessary
 - Industry proposed focus on water injection and management as an alternative to drywell vent
 - Staff reviewing industry proposal

Long-Term Regulatory Strategies for Orders

- Regulatory treatment
 - Licensee documentation
 - Change process
 - Regulatory review documentation
 - Rulemaking
- Oversight
 - Mechanism for oversight
 - How to disposition issues

Additional Tier 1 Activities

- Seismic and Flooding Hazard Reevaluations (Rec. 2.1)
- Station Blackout Mitigating Strategies and Onsite Emergency Response Capabilities Combined Rulemaking (Recs. 4.1 & 8)
- Emergency Staffing and Communications (Rec. 9.3, partial)
- Filtration and Confinement Strategies Rulemaking (Additional Issue)

Seismic Hazard Reevaluations

- The staff is reviewing Central and Eastern U.S. (CEUS) seismic hazard reevaluations (SHRs)
- Conducted public meetings on SHR technical differences with each licensee
- Developing a template for the expedited approach submittals
- CEUS expedited approach submittals are due by December 2014
- SHR staff assessments for CEUS sites to be completed within 12 months
- SHRs for Western U.S. sites are due in March 2015

Flood Hazard Reevaluations

- The staff is reviewing Category 1 flood hazard reevaluations
- The first staff assessment of Category 1 flood hazard reevaluations has been issued
- Staff has finalized its decisions on Category 2 extension requests
- Staff has initiated review of Category 2 interim action submittals

Status of Lessons Learned Rulemakings

- Combined Rulemaking:
 - Station Blackout
 - Mitigating Strategies
 - Severe Accident Management Guidelines
 - Emergency Response Capabilities
- Filtering Strategies

Japan Lessons Learned

Tier 2 Activities

- Enhanced spent fuel pool makeup capability
 - Addressed under mitigating strategies order
- Enhancing emergency preparedness for prolonged station blackout and multiunit events
 - Addressed under mitigating strategies order
 - Multiunit dose assessment capability established
- Reevaluation of other external hazards
 - Dependent on insights from seismic/flooding hazard reevaluations and availability of staff resources

Japan Lessons Learned

Tier 3 Activities

- Some issues require additional information/evaluation
- Some issues are dependent on insights from Tier 1 activities
- Progress being made on Tier 3 activities as information, resources, and insights become available

Consistency with International Community

- NRC regulatory actions are similar to those taken by international counterparts
- NRC actively participates in international working groups
 - International Atomic Energy Agency
 - Nuclear Energy Agency
- Numerous meetings with international regulators
 - Japan lessons learned activities discussed routinely during bilateral meeting

Inspection Role

- Regions are an essential part of agency response
 - Independently verify licensee actions to ensure safety
 - Communicate with stakeholders
- Increased focus on beyond design basis events and emergency preparedness post-Fukushima
- Initial post-Fukushima inspections completed



Inspector Identified Issues



Point Beach



Monticello

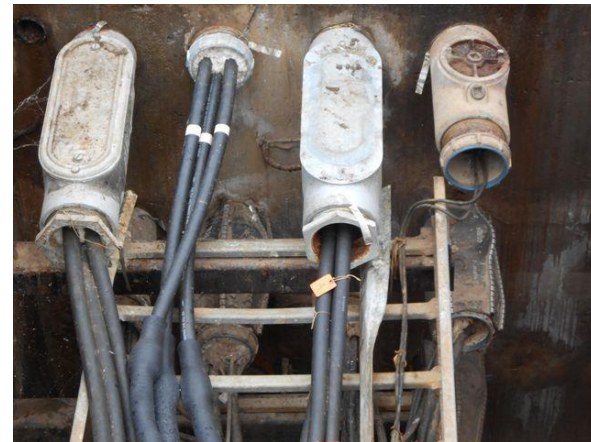
Inspector Identified Issues, cont'd



Watts Bar



Ginna



Sequoyah

Plan for Future Inspections

- Compliance verification inspections will follow issuance of Safety Evaluations
 - Regions will lead inspections
 - Watts Bar is first site to meet compliance date
 - Inspections at other sites begin next summer
- Initial round of inspections using Temporary Instruction (TI)
 - Draft TI 2515/191 discussed at public meeting on July 2, 2014
 - TI inspection will be piloted at Watts Bar this fall
- Plan for efficient use of resources
 - TI inspection will be used for other baseline inspection samples
 - Appropriately adjust Reactor Oversight Process resources

National Academy of Sciences Study on Fukushima

- Staff is reviewing the recently released report and will inform the Commission of any new and significant information

Summary

- Considerable progress has been made
- Substantial safety enhancements are ongoing and will be fully in place by 2016
- NRC is on a timeline consistent with many other countries
- Continuing international cooperation

Acronyms

- CEUS – Central and Eastern United States
- EA – Enforcement Action
- JLD – Japan Lessons-Learned Division
- NRC – Nuclear Regulatory Commission
- NRR – Office of Nuclear Reactor Regulation
- SHR – Seismic Hazard Reevaluations
- TI – Temporary Instruction