



U.S. NRC

UNITED STATES NUCLEAR REGULATORY COMMISSION

Protecting People and the Environment

NTTF Recommendation 2.1

Seismic

March 30, 2015

Andrea Kock, Diane Jackson,
Mohamed Shams, Nick DiFrancesco

Office of Nuclear Reactor Regulation

Office of New Reactors



Today's Agenda

NRC

- Update of R2.1 seismic activities
- Western US (WUS) screening review
- Public questions or comments

NEI

- Update of spent fuel pool evaluation approach

NRC

- Summary of key messages
- Public questions or comments



Update of R2.1 Seismic Activities



R2.1 Seismic Activities

- Continuing closeout of CEUS hazard reviews
- Ongoing review effort with CEUS ESEP reports
- Staff review of High Frequency and Spent Fuel Pool Evaluation Approaches Ongoing
- Receipt of Western US (WUS) seismic reports

CEUS – Central and Eastern United States

ESEP – Expedited Seismic Evaluation Process



Seismic Hazard Review Update for CEUS

Overview

- Licensee supplements expected for 3 CEUS sites
- Current Staff Assessment progress and schedules
- Schedule goal for completion of Group 3 and screened-out sites



CEUS Seismic Hazard Supplements

- Supplements are expected for Robinson, Oconee, and VC Summer sites
 - Supplements expected in Apr/May 2015
 - Staff assessments on hold pending receipt
 - Staff goal remains to complete reviews by October 2015 provided supplements are complete and timely



CEUS Seismic Hazard Staff Assessments

- Staff assessment (SA) issuance target and progress
 - Group 1 – May 2015 (6 of 10 - SAs in concurrence)
 - Group 2 – June 2015 (5 of 9 - SAs drafted)
 - Group 3 – August 2015
 - Screened-out – Sept / Oct 2015

* Seismic review groups in May 9, 2014 letter (ML14111A147)



Status of Expedited Seismic Evaluation Process (ESEP) Review



ESEP Review

- ESEP Review Progress
- Staff Review Approach



ESEP Review Progress

- February 2015
 - Audit letter dated February 10, 2015 (ML14356A003)
 - Review team identified items to clarify for Batch 1
- March 2015
 - Staff sent clarifying questions to 5 of 12 Batch 1 sites
 - Developed Technical Inputs for Response Letters
- April 2015
 - NRC review of licensee responses for Batch 1
 - Determine Batch 1 sites for audits
- May 2015
 - Draft Batch 1 Response Letters
 - Potential for early Batch 2 clarifying questions



Two Step - ESEP Review Approach

Clarifying questions

- Most sites in Batch 1 will receive clarifying questions
- Staff focus is on evaluating implementation of the staff endorsed guidance
- Prompt licensees response are supportive of the aggressive review schedule

ESEP Audits (if needed)

- Potential audits of some calculations
- NRC will inform Batch 1 licensees (late April)



Limited Evaluation Approach Developments



High Frequency Eval. Approach

- Public meeting tomorrow (1pm Eastern)

Spent Fuel Pool Evaluation

- Structural approach discussion today
- Further understanding of non-structural SPID checklist items

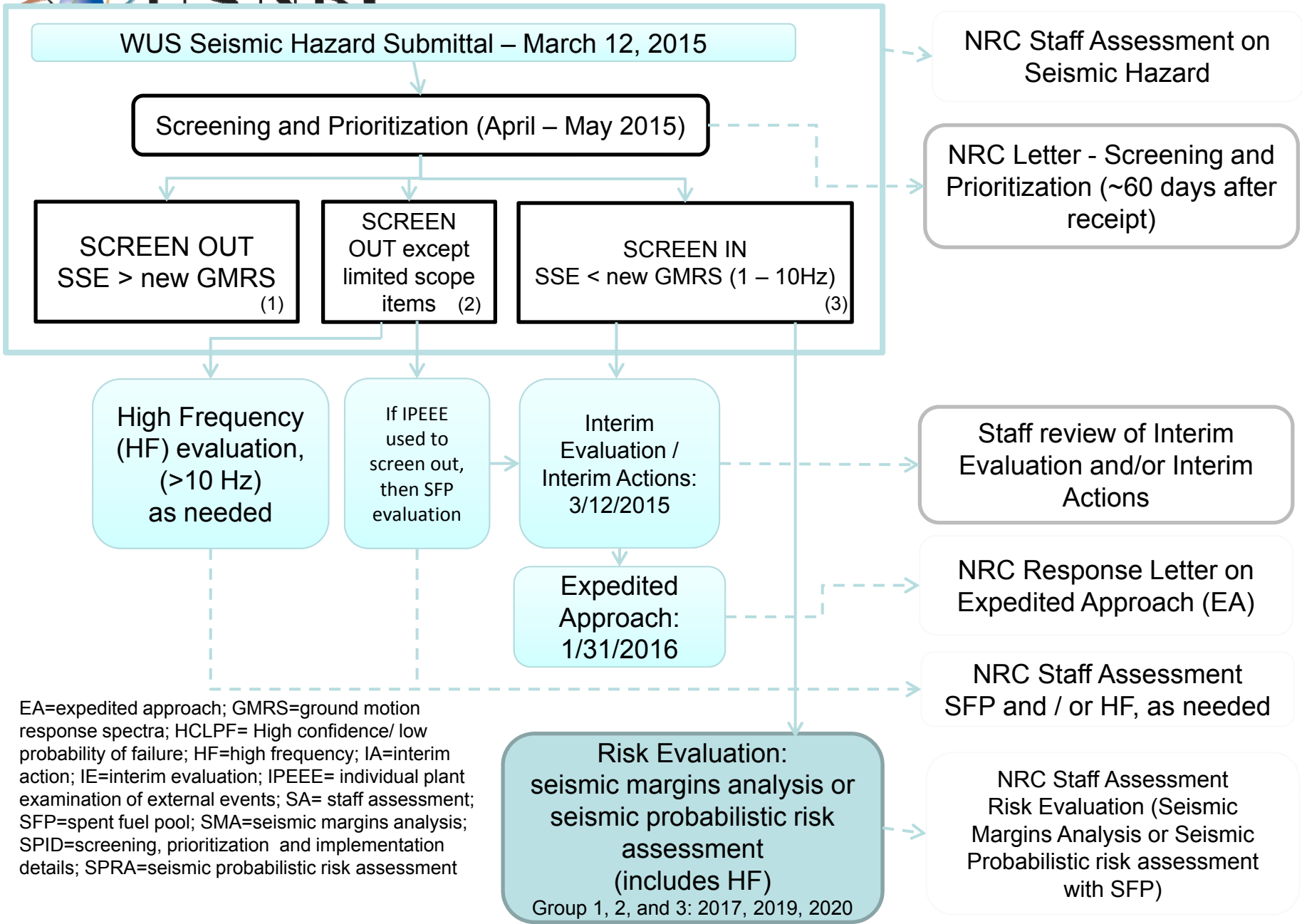


WUS Hazard Reevaluation Screening Reviews



WUS Hazard Reevaluation Screening Reviews

- WUS Hazard reports received by March 12, 2015
- NRC to issue a screening response letter including a review of the initial licensee's interim actions within 30-60 days following the March 12, 2015 submittals
- Public meetings planned following screening determinations to support NRC technical review
- Review for WUS sites will require 12 to 18 months depending on priority and complexity





Summary of WUS Hazard Reevaluation Reports

- Staff review of licensee screening determination is ongoing

WUS Seismic Hazard Report	ADAMS #	Licensee Seismic Risk Evaluation Screening	Licensee Interim Actions Submitted	Licensee Limited Scope Evaluations Screening
Columbia Generating Station	ML15078A243	In	Yes	HF and SPF
Diablo Canyon Power Plant, Unit Nos. 1 and 2	ML15071A046	In	Yes	HF and SPF
Palo Verde Nuclear Generating Station, Units 1, 2, and 3	ML15076A073	Out	No	No



Seismic Hazard Review Milestones

- WUS Reevaluated Hazard and SSHAC Reports received by March 12, 2015
- WUS Screening and Interim Action Letter (April/May 2015)
- WUS Seismic Public Meetings (Spring 2015)
- Issuance of Staff Assessment for CEUS Hazards by Group (May 2015 through October 2015)
- Issuance of Staff Assessment for WUS Hazards (Q2 2016 to Q3 2016)



Opportunity for Public Questions or Comments

Additional Questions? Please ask us at:

JLD_PublicResource@nrc.gov



Key Messages and Next Steps



Key Messages

- Progress continues on NTTF 2.1 Seismic
- Continue efforts with development of high frequency and spent fuel pool implementing guidance
- Continue plant specific communications with JLD Project Managers on review issues and timelines



Upcoming NTTF 2.1 Seismic Activities

- WUS Screening and Prioritization Determination (April/May 2015)
- Further development of High-Frequency Evaluation Implementing Guidance (Spring 2015)
- Spent Fuel Pool Evaluation Implementing Guidance (Spring/Summer 2015)



Upcoming NTTF 2.1 Activities (cont.)

- Issuance of Staff Assessments of Reevaluated Hazards (May 2015 to October 2015)
- Issuance of ESEP Response Letters (Q2 2015 to Q2 2016)



Opportunity for Public Questions or Comments

Additional Questions? Please ask us at:

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Backup Slides



Seismic Hazard Reevaluations

	Mar-15	May-15	Jul-15	Sep-15	Nov-15	Jan-16	Mar-16	May-16	Jul-16	Sep-16	Nov-16	Jan-17	Mar-17	May-17	Jul-17	Sep-17	Nov-17	Jan-18	Mar-18	May-18	
CEUS Seismic Hazard Reviews																					
Group 1 Reviews	Issue SA																				
Group 2 Reviews	Issue SA																				
Group 3 Reviews	Draft SA	Issue SA																			
Screened-out Site	Draft SA	Issue SA																			
CEUS ESEP Reviews (Review, Audit, Issue Reponse Letter)	Batch 1	Batch 2	Batch 3	Batch 4																	
WUS Hazard - Screening and Prioritization	WUS Results Letter																				
WUS Hazard Reviews		RAIs	RAI Resp. & Draft SA	Draft and Issue SA																	
WUS ESEP Reviews							Batch 4														
Limited Scope Evaluations or Confirmations							Receipt and Review of Limited Scope Evals or Confirmations														
Group 1 Risk Evaluations (June 2017)															Receipt	RAIs	RAI Resp. & Draft SA	Issue SA			



Seismic Hazard - Review Group 1

- Callaway
- DC Cook 1 & 2
- Indian Point 2 & 3
- North Anna 1 & 2
- Oconee 1, 2, & 3
- Peach Bottom 2 & 3
- Pilgrim
- HB Robinson
- Vogtle 1 & 2
- Watts Bar 1 & 2



Seismic Hazard - Review Group 2

- Beaver Valley 1 & 2
- Browns Ferry 1, 2, & 3
- Fermi
- Hatch
- LaSalle
- Palisades
- Virgil Summer
- Catawba
- Sequoyah 1 & 2



Seismic Hazard - Review Group 3

- Bellefonte
- Calvert Cliffs 1 & 2
- Cooper *
- Davis-Besse
- McGuire
- Monticello
- Perry
- Point Beach
- Seabrook
- Three Mile Island
- Wolf Creek

*NRC review of February 11, 2015 Cooper supplement letter is ongoing (ML15050A165)



ESEP – Review Batch 1

- Hatch 1 & 2
- Peach Bottom 2 & 3
- Dresden 2 & 3
- Pilgrim
- Watts Bar 1 & 2
- Catawba 1 & 2
- Vogtle 1 & 2
- Indian Point 2 & 3
- VC Summer
- North Anna 1 & 2
- Oconee 1, 2, & 3
- Fermi



ESEP – Review Batch 2

- Browns Ferry 1, 2, & 3
- Monticello
- LaSalle 1 & 2
- D.C. Cook 1 & 2
- Sequoyah 1 & 2
- Callaway
- Wolf Creek
- Beaver Valley 1 & 2
- H. B. Robinson
- Palisades
- Calvert Cliffs 1 & 2



ESEP – Review Batch 3

- FitzPatrick
- Brunswick 1 & 2
- Oyster Creek
- Perry 1
- McGuire 1 & 2
- Seabrook
- Point Beach 1 & 2
- Three Mile Island 1
- Davis-Besse
- Cooper



Additional WUS Seismic Hazard Reports

Public SSHAC Reports

- Columbia

<http://www.hanford.gov/page.cfm/OfficialDocuments/HSPSHA>

- Diablo Canyon

<http://www.pge.com/en/safety/systemworks/dcpp/sshac/index.page>