



# Fukushima External Flood Reevaluation

NRC Headquarters  
One White Flint North  
Rockville, MD

February 19, 2013



## *Duke Attendees*

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Dave Baxter, VP, Regulatory Project Completion

Dean Hubbard, Oconee External Flood Licensing Manager

Dana Jones, Oconee Fukushima Engineering Supervisor

George Attarian, Duke Energy Fukushima Flooding Manager

Andrew Miller, Senior Engineer - AMEC/ERIN

Joe Bellini, Associate AMEC



## *Agenda Overview*

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- ❖ Introductions and Opening Remarks
- ❖ Flooding Integrated Assessment Update
- ❖ NRC and FERC feedback
- ❖ Action Item Review



## *Flooding Integrated Assessment Update*

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### **Integrated Assessment Preliminary Schedule**

- ❖ January – Team kickoff
- ❖ February – Peer Review team lead identified
- ❖ March – Hazard Reevaluation completed & identification of controlling flood parameters
- ❖ May – Evaluation of existing flood protection complete
- ❖ July – Evaluation of protection/mitigation complete
- ❖ August – Protection/mitigation strategy & mod scope determined
- ❖ September – Complete first draft of IA
- ❖ October – Expected submittal of the IA to the NRC



## *Flooding Integrated Assessment Update*

# Flooding Hazard Reevaluation Update

- ❖ Flooding Hazard Reevaluation Due 3/12/13
- ❖ Dam Failure Evaluation
  - Updating January 28, 2011 Safety Evaluation
    - ✓ Overtopping and Seismic failure not considered credible
    - ✓ Assuming Sunny Day Failure with piping as the failure mechanism
  - USGS 2008 Seismic, mean seismic hazard curves for 1, 5, 10 Hz, and PGA.  $10^{-4}$  w/ Uniform Hazard Response Spectrum (UHRs).
  - Xu & Zhang (2009) - *Breaching Parameters for Earth and Rockfill Dams*
  - 2 D Analysis in progress
- ❖ Local Intense Precipitation
  - HMR-51/52 basis for rain event
  - Site results in final review



## *Flooding Integrated Assessment Update*

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### **Integrated Assessment Assumptions**

- ❖ Timely NRC review of Hazard Reevaluation
- ❖ Use JLD-ISG-2012-05 to perform integrated assessment
- ❖ Two flooding hazards of significance are Dam Failure & LIP
- ❖ Protection will preserve key safety functions
- ❖ Plant modes: 1 through 6 (6 for one of three units)
- ❖ Evaluation Process - Scenario-Based Evaluation



## *Flooding Integrated Assessment Update*

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### **Open Areas to be Addressed**

- ❖ Timely response to pending FAQ's
  - ❖ Seismic dam failure analysis criteria
  - ❖ Flood Duration – Stable state maintained indefinitely
- ❖ Conceptual Modifications proposed for protection
- ❖ FERC – Board of Consultants



## *Flooding Integrated Assessment Update*

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### **Regulatory feedback**

- ❖ NRC
  - NRO
  - NRR

- ❖ FERC





## *Action Items*

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### **Action Items**

- ❖ Current – (none for first meeting)
- ❖ New items