

Flooding Issue Strategy

NEI Fukushima Flooding Task Force

December 14, 2011



Overview

- Summary of Industry White Paper on SECY 11-0137 Item 2.1 and 2.3 Flooding Response
- Proposed “FLEX” Approach

Industry White Paper

- Describes key aspects of industry's approach to address the SECY 11-0137 tier 1 flooding recommendations
- Work in progress and will be revised to address comments from the meeting and revisions to the approach
- Presentation describes major points in the White Paper and current thinking

Staff Recommendation: SECY Item 2.1

“2. Interact with stakeholders to inform NRC’s process for defining guidelines for the application of present-day regulatory guidance and methodologies being used for early site permit and combined license reviews to the reevaluation of flooding hazards at operating reactors.”

“4. Develop and issue a request for information to licensees pursuant to 10CFR50.54(f) to (1) reevaluate site specific flooding hazards using the methodology discussed in item 2 above, and (2) identify actions that have been taken or are planned to address plant specific issues associated with the updated flooding hazards (including potential changes to the licensing or design basis of a plant).”

White Paper: SECY Item 2.1

- **Industry interpretation of SECY intent:**
 - **Develop a method and guidance to:**
 - 1. Reevaluate the flooding hazards for existing plants using the requirements being imposed on new reactors.**
 - 2. Compare a plant's existing licensing and design basis and protection features for flooding to the flooding hazards determined by item 1.**
 - 3. Identify vulnerabilities and actions to address them**

White Paper: SECY Item 2.1

- **Assumptions**
 - **The evaluation performed to respond to this item is beyond existing plant design and licensing bases.**
 - **Any actions taken or planned as a result of the evaluation are considered beyond existing design and licensing basis; they are not considered changes to existing design or licensing basis.**
 - **The guidance takes into account that the evaluation is being performed for an existing plant as opposed to a new design.**
 - **Only external flooding will be considered**

White Paper: SECY Item 2.1

- **Deliverables**
 - **Guidance that can be used by all licensees to respond to the 50.54(f) letter**
 - **Acceptance criteria**
 - **Estimate of the time required to perform the evaluation (input to the 50.54(f) letter response times**

White Paper: SECY Item 2.1

- **Approach**
 - **White paper discusses two approaches.**
 - **Thinking has evolved. Industry has developed a “FLEX” approach as an improvement**
 - **If the “FLEX” approach is endorsed by the Fukushima Steering Committee, an alternate strategy will be developed**

FLEX Approach Concept

- **“FLEX” would provide multiple means of obtaining power and water needed to fulfill the key safety functions of core cooling, containment integrity, and spent fuel pool cooling**
- **“FLEX” will identify a base set of equipment and procedures necessary to mitigate the consequences of beyond design basis events by**
 - **cooling the core and SFP**
 - **providing essential electrical power for instrumentation and control**

FLEX Approach Concept

- **Application of “FLEX” to flooding event**
 - **Develop approach to ensure FLEX equipment survivability during flooding**
 - **Identify additional equipment and instrumentation necessary to address flooding specific considerations**
 - **Identify diverse connection points for FLEX equipment**
 - **Provide procedure and programmatic considerations**

FLEX Approach Concept

- FLEX approach has several advantages
 - Faster: implementation of the largest safety benefit from Tier 1 activities sooner
 - Durable: accommodates future changes to inputs and assumptions
 - Flexible: not dependent on a design limit that can change
 - Integrated and efficient: can be used to mitigate several Fukushima lessons learned

Staff Recommendation: SECY Item 2.3

- 1.** *“Engage stakeholders to inform development of a methodology and acceptance criteria for seismic and flooding walkdowns; and*
- 2.** *Develop and issue a request for information to licensees pursuant to 10CFR50.54(f) to (1) perform seismic and flood protection walkdowns to identify and address plant specific issues (through corrective action program) and verify the adequacy of monitoring and maintenance for protection features and (2) inform the NRC of the results of the walkdowns and corrective actions taken or planned.”*

White Paper: SECY Item 2.3

- **Industry interpretation of SECY intent**
 - **Develop guidance for:**
 - **Walkdowns that compare a plant's existing flood protection configuration with the plant's design and licensing basis for flooding.**
 - **Evaluations that assess the adequacy of monitoring and maintenance of the flooding protection features.**

White Paper: SECY Item 2.3

- **Assumptions**
 - **The walkdowns will compare current plant configuration and procedures to existing design basis documents (e.g., current drawings and procedures).**
 - **The effect of beyond design or licensing bases flooding will be addressed in the response to SECY item 2.1.**
 - **Only external flooding events will be considered.**

White Paper: SECY Item 2.3

- **Deliverables**
 - **Walkdown methodology that compares existing flood protection features with the existing design and licensing basis for flooding**
 - **Specific acceptance criteria for the evaluation of barriers, penetrations, drains, sump pumps and other equipment credited for flood protection on drawings or procedures**

White Paper: SECY Item 2.3

- Deliverables (Continued)
 - Estimate of the time required to perform the walkdown as input to the 50.54(f) letter response time
 - Allowance for additional time to gain access to equipment in inaccessible areas should be considered

Summary

- **“FLEX” is an efficient, effective, and timely way to mitigate the consequences of beyond design basis flooding events and other tier 1 activities**
- **Walkdowns for SECY item 2.3 will validate existing plant flood protection features against existing design basis**