



JLD-ISG-2016-01

**Guidance for Closure of Flooding
Hazard Reevaluation through
Focused Evaluation Process**

April 8, 2016

Purpose

- To provide guidance for closure of flooding hazard reevaluations by:
 - Endorsing NEI 16-05 with clarifications in order to provide a graded approach to identify the need for, prioritization and scope of, integrated assessments.
- Guidance for regulatory decision making for integrated assessments will be issued separately.

Background

- 10 CFR 50.54(f) Letter of March 12, 2012
- COMSECY-14-0037 and SRM
- COMSECY-15-0019 and SRM
- Order EA-12-049
- NEI 12-06, Rev. 2, Appendix G
- MBDDBE Rulemaking

Anticipated Regulatory Outcomes

- Under 50.54(f) Letter:
 - Interim actions addressing hazard
 - Commitments to justify improved realism:
 - Plant modifications
 - Programs and Procedures
 - Phase 2 Regulatory Decision Making
- Under MBDBE Rule:
 - Mitigating strategies for hazard without change to improve realism

Industry Proposed Guidance: NEI 16-05

- White paper representing ISG is based on NEI 16-05, Rev. A of March 9, 2016.
- White paper includes provisions to reflect changes to NEI 16-05 received in preliminary draft form.
- JLD-ISG-2016-01 will be issued in draft form by Federal Register Notice and based on latest docketed version of NEI 16-05.

Improvements to Realism

- SRM-COMSECY-15-0019: “[S]taff should continue to look for additional opportunities to address any over conservatism.”
- Method: NUREG/CR-7046 HHA Process
- Catalog of potential sources of conservatism in NEI 16-05, App. A to consider in HHA
 - Site-specific consideration of changes

Path 1 – Bounded by Design Basis

- Licensees may use bounding sets of flood parameters to disposition groups of flood mechanisms, leaving other to disposition by other paths
- All flood mechanisms in this path would have improved realism using HHA

Initial Evaluation of Impact and Protection

- NEI 16-05, Section 6.3.1 and Appendix D
- Key SSCs do not include portable or installed FLEX equipment
- Critical flood elevation (CFE) includes load considerations
- Licensees performing revised integrated assessments (paths 4 & 5) should identify frequencies of exceedance for CFE using a methodology that conforms to App D, taking into account PFHA attributes and clarifications of ISG

Available Physical Margin

- NEI 16-05, Section 6.3.2, App. B & C, and NEI 12-06, Rev. 2, App. E
 - Clarifications of JLD-ISG-2012-01 apply
 - Resulting qualitative evaluation of site response will be reviewed using engineering judgment (See COMSECY-15-0019)
 - APM should be determined by comparing flood parameters with protection failure parameters
 - Licensees should identify operational requirements for seals and use CAP

Path 2 – Effective Flood Protection

- NEI 16-05, Section 7.2 and App. B & C, and NEI 12-06, Rev. 2, App. E
 - Clarifications of JLD-ISG-2012-01 apply
 - Resulting qualitative evaluation of site response will be reviewed using engineering judgment (See COMSECY-15-0019)
 - Licensees should identify operational requirements for seals and use CAP
 - Site-specific review of hazard refinement under HHA

Path 3 – Local Intense Precipitation

- NEI 16-05, Section 7.3

As discussed in COMSECY-15-0019, “licensees [with LIP hazards exceeding their current design-basis flood should] assess the impact of the LIP hazard on their sites and then evaluate and implement any necessary programmatic, procedural or plant modifications to address this hazard exceedance. This assessment includes evaluation and justification for: crediting systems that were assumed clogged during the hazard reevaluations; and considering available warning time and flood protection measures, both permanent and temporary, as well as associated manual actions.” Licensees may use the process described in the NEI White Paper, “Warning Time for Maximum Precipitation Events,” dated April 8, 2015 (ADAMS Accession No. ML15104A157), and the related NRC letter dated April 23, 2015 (ADAMS Accession No. ML15110A080) in order to take advantage of warning time for LIP.

Path 4 – Demonstrate Effective Mitigation

- NEI 16-05, Section 8.1
- Licensees should provide corresponding information to address CFE from NEI 16-05, Section 6.3.1, including frequencies of exceedance

Path 5 – Scenario-Based Approach

- NEI 16-05, Section 8.2 and App. D
- Scenarios developed should include CFE
- Identification of scenarios with effective flood protection should include path 2 considerations of NEI 16-05 and ISG
- Frequencies of exceedance should be developed with a methodology that conforms to App D, taking into account PFHA attributes and clarifications of ISG

Documentation

Licensees should submit the results of the focused evaluations and integrated assessments for staff review and closure of the RFI. The level of detail generally considered adequate is consistent with the level of detail contained in the Licensee's Final Safety Analysis Report (FSAR). Information submitted should address the following:

- Characterization of flood parameters
- Evaluation and description of flood impacts and site/plant conditions
- Explanation of approach used for integrated assessment
- Evaluation of flood protection for reevaluated flooding hazard, including criteria used to justify reliability, if applicable
- Identification of characteristics of consequential flooding
- Information R2.1 closeout or Phase 2 decision making (e.g., commitments)

Documentation, cont.

In addition, sites performing an IA should also address the following information:

- Detailed description of the approach used for mitigation
- Description of scenarios considered (multiple scenario or bounding scenario)
- Documentation of the evaluation of the availability and reliability of credited SSCs
- Strategy timeline showing all manual actions
- Description of evaluation of manual actions and strategies
- Logic structures (or sufficient information to allow staff development of logic structures)
- Documentation of conclusions regarding effectiveness of mitigation approach(es)
- [optional] Identification of redundancy and diversity in approach(es), available margins (e.g., time margins), and discussion of defense-in-depth considerations that are maintained under each set of flood scenario parameters

Enclosure

- Attributes and considerations for PFHA
 - Team of appropriate size and expertise
 - Selection of data, models, and methods
 - Consideration of state of practice and limitations
 - Appropriate consideration of uncertainties
 - Appropriate combination of events
 - Unique aspects of hazard mechanisms