PUBLIC SUBMISSION

As of: 2/11/16 2:42 PM
Received: February 11, 2016
Status: Pending_Post
Tracking No. 1k0-8nwj-nyr6
Comments Due: February 11, 2016
Submission Type: Web

Docket: NRC-2014-0240
Mitigation Strategies for Beyond Design Basis Events

Comment On: NRC-2014-0240-0003
Mitigation of Beyond-Design-Basis Events

Document: NRC-2014-0240-DRAFT-0018
Comment on FR Doc # 2015-28589

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General Comment

See attached file(s)

Attachments

BDBEE Rulemaking comments

On November 13, 2015, the Nuclear Regulatory Commission (NRC) published a proposed rule regarding Mitigation of Beyond-Design-Basis Events in the Federal Register, requesting comments by February 11, 2016. FirstEnergy Nuclear Operating Company (FENOC) appreciates the opportunity to provide comments is providing the following for consideration.

FENOC endorses the comments provided by the Nuclear Energy Institute in a letter dated February 9, 2016. In addition, the following contains some primary comments that are of particular concern to FENOC. Also, the NRC requested responses to ten specific questions. The questions and FENOC responses are also included.

COMMENTS

Implementation Time: The proposed rule would require that each holder of an operating license comply with its provisions no later than two years following the effective date of the rule. This timeframe is not adequate. The degree to which the reevaluated seismic or flooding hazard(s) may impact the implementation of mitigating strategies varies widely across the operating reactor fleet, and the effort required to address them varies widely too. In addition, the various evaluations necessary to prepare for any necessary changes are in different stages of completion. As a result, the industry recommends that the proposed rule allow licensees to submit site specific schedules for achieving full compliance with the rule within 90 days from the effective date of the rule.

Definition of Extended Loss of AC Power (ELAP): The wording in section IV.D, Integrated Response Capability, can easily lead to the conclusion that the mitigating strategies implemented by the industry did not properly consider a loss of all ac power in that the assumptions and initial conditions allowed for the availability of ac power from batteries through inverters. Even though the paragraph in question expressly states there is no intent to either relax or impose new requirements, the overall message of the paragraph is that a loss of all ac power includes the loss of ac power from batteries through inverters.

This is inconsistent with the definition of ELAP from the NRC-endorsed industry guidance in NEI 12-06 which defines an ELAP as a loss of off-site power, emergency diesel generators and any alternate ac source but not the loss of ac power from buses fed by station batteries through inverters. To even infer anything different from this definition will create the potential for improper interpretation of the required capabilities by future inspectors. The last sentence of the paragraph clearly implies that the rule is requiring something different than what was implemented under the Order.
The mitigating strategies do provide contingencies for the loss of ac power from inverters but those contingencies are not the same as assuming a loss of ac power from inverters at the start of the event.

Application of Other Change Control Processes: 10 CFR 50.155(f) should explicitly and clearly address the application of "Other Change Control Processes" given that facility changes can impact multiple aspects of the plant having different applicable requirements, and be subject to different change control requirements. The rule and associated guidance should consistently differentiate between design basis conditions and beyond-design-basis conditions, i.e., clarify that existing change control processes such as §50.59, §50.54(p), §50.54(q) and fire protection change controls are not applied to beyond-design-basis requirements.

Methodology for Addressing the Reevaluated Hazards: The need for a licensee's strategies and guidelines to be capable of execution in the context of the reevaluated flooding and seismic hazards' should be addressed in §50.155(b)(1) rather than §50.155(c)(2). It is intended that the effects of the reevaluated hazards be mitigated in a manner similar to the strategies that have been developed by the industry for FLEX. The incorporation of the reevaluated hazards into §50.155(c)(2)(i) addresses reasonable protection, and reasonable protection only applies to FLEX equipment. This does not achieve the intended objective of developing mitigating strategies for the reevaluated flood and seismic hazards. In addressing mitigating strategies for the reevaluated hazards, §50.155(b)(1) should allow further flexibility in the licensee's strategies and guidelines by 1) establishing an alternative means of compliance that does not include the surrogate conditions of an extended loss of all alternating current power and loss of normal access to the ultimate heat sink, and 2) providing different success criteria for targeted or scenario-specific mitigating strategies (i.e., namely requiring core cooling and spent fuel pool cooling but not the containment capability to be maintained). The rule should also allow for utilization of risk insights to demonstrate reasonable protection for mitigation of beyond design basis seismic events.

Use of Adequate Protection: The proposed rule and regulatory analysis properly recognizes that the new requirement to monitor and assess multiple source terms constitutes a backfit, but rather than perform a systematic and documented analysis demonstrating that this new requirement will result in a cost-justified substantial increase in safety, the NRC has invoked backfit exception in §50.109(a)(4)(ii) for regulatory actions that are "necessary to ensure that the facility provides adequate protection to the health and safety of the public." The draft regulatory analysis fails to overcome the presumption that current regulations and orders currently ensure adequate protection because it identifies no significant safety issue that is going unaddressed. On top of the extensive required actions that licensees are already taking, the industry is voluntarily implementing multiple source-term dose-assessment capabilities to assist in the mitigation of remote, yet potentially serious beyond-design-basis, external events. Rather than place these actions in their proper context, the draft regulatory analysis offers generic statements about meeting existing emergency preparedness regulatory objectives. Accordingly, the NRC has not justified using the adequate protection exception and should not impose this new requirement absent an analysis demonstrating that it will result in a cost-justified substantial increase in safety.

Spent Fuel Pool Instrumentation (SFPI): The rule language, regulatory guides and related supporting information must keep the requirements for SFPI separate and distinct from the requirements for mitigating strategies. The requirement for SFPI was promulgated by NRC Order EA-12-051, while the requirement for mitigating strategies was promulgated by NRC Order EA-12-049. While the two orders were in response to lessons learned from the Fukushima accident, they are distinctly different in underlying purpose and character. EA-12-049 requires guidance and strategies to maintain core and spent fuel cooling and the containment function in the face of certain events, and requires the ability to take action under the circumstances specified in the order.

EA-12-051 requires the installation of reliable spent fuel pool instrumentation to provide decision makers with information about the amount of water in the spent fuel such that resources can be allocated. EA-12-051 does not require the ability to take action; it only provides information. The fact that industry FLEX program implemented in response to EA-12-49 uses this information to indicate the need to add water to the pools does not change the underlying SFPI requirement and does not justify including SFPI as part of mitigating strategies as appears to have been done in the draft of proposed 10 CFR 50.155(c)(4).

RESPONSES TO SPECIFIC QUESTIONS

1. *Change Control.*
The provisions governing change control in proposed § 50.155(f) do not contain a criterion or a set of criteria that would establish a threshold beyond which prior NRC review and approval would be necessary to support a proposed change to the facility impacting the beyond design-basis aspects of this proposed rulemaking and its supporting implementation guidance. For example, a set of criteria that asks whether a proposed facility change adversely impacts the capability to maintain and restore core cooling, containment, and spent fuel pool cooling capabilities, in conjunction with a criterion that asks whether the proposed facility change adversely impacts the supporting equipment requirements in proposed paragraph (c) might be sufficient for judging whether changes to the facility that impact the implementation of the mitigation strategies of proposed (b)(1) require prior NRC review and approval. What are stakeholders' views on this proposed change control structure, and what do stakeholders suggest for revising the change control process to contain criteria for determining the need for prior NRC review and approval?

RESPONSE: FENOC agrees with the proposed rule change as presented. The proposed 10 CFR 50.155(f)(1) contains the provision that a "licensee may make changes in the implementation of the requirements in this section and 10 CFR part 50, appendix E, section VII without NRC approval, provided that before implementing each such change, the licensee performs an evaluation demonstrating that the provisions of this section and 10 CFR part 50, appendix E, section VII, continue to be met." The requirement to perform the evaluation is sufficient, no specific set of criteria is needed for licensees to be able to make the determination whether or not the rule continues to

be met. This is consistent with the NRC-endorsed change control guidance contained in NEI 12-06.

One concern is that the supplementary information seems to contradict this by stating that “the proposed change control provisions may result in licensees seeking NRC review and approval of proposed changes that do not follow current regulatory guidance for this proposed rulemaking potentially through a license amendment.” As described in both proposed § 50.155(f) and NEI 12-06, a licensee would not need a license amendment to implement strategies that are not approved in regulatory guidance if the licensee performs a documented assessment demonstrating that the change continues to meet applicable regulatory requirements.

2. *Application of Other Change Control Processes.*
Proposed § 50.155(f)(3) contains a requirement for licensees to use all applicable change control processes for facility changes, and not simply apply proposed paragraph (f) (*i.e.,* the proposed change control process of paragraph (f) is only applicable to facility changes with respect to their beyond-design-basis aspects and to the extent that such changes impact implementation of the requirements of proposed § 50.155 or the proposed 10 CFR part 50, appendix E, section VII) to the exclusion of other change control processes. This recognizes that facility changes can impact multiple aspects of the plant having different applicable requirements, and being subject to different change control requirements. For example, a licensee may want to make a facility change (*e.g.,* a physical connection device) to support implementation of the beyond-design basis external event mitigation strategies, and this change might impact safety-related SSCs. In addition to applying the new change control provision to ensure beyond-design-basis aspects of the proposed change result in continued compliance with the new requirements of this proposed rule, the licensee would also need to apply 10 CFR 50.59 to ensure that the facility change does not, due to its impact on safety-related SSCs, require prior NRC approval. The NRC requests feedback on the need for this proposed provision, or suggestions on how it might be improved.

RESPONSE: FENOC agrees with the proposed rule change as presented. FENOC concurs with the example given that a facility change may impact both currently installed safety-related SSCs and beyond-design basis equipment. It would not be appropriate to subject currently installed safety-related SSCs to the review required by 10 CFR 50.155(f), nor would it be appropriate to subject the beyond-design basis equipment to a review intended for currently installed SSCs, such as 10 CFR 50.59. Therefore, it is appropriate to implement the 10 CFR 50.155(f) review in addition to the existing reviews.

3. *Reasonable Protection.*
This proposed rule contains a requirement in proposed § 50.155(c)(2) that equipment supporting the proposed mitigation requirements of paragraph (b)(1) be ‘‘reasonably protected’’ from the effects of natural phenomenon including both those in the current plant design basis as well as the reevaluated hazards under the March 12, 2012, § 50.54(f) request concerning flooding and seismic hazards. As a practical matter,

implementation of Order EA–12–049 began before the reevaluated hazard information was available. The NRC recognizes that licensees were mindful of the hazard information, and attempted to address it during implementation. The NRC requests feedback concerning any costs and impacts that licensees would expect to occur as a result of this proposed requirement to include such things as rework or changes to previously implemented mitigation strategies.

RESPONSE: FENOC endorses the comments provided by NEI in regard to this question, including the referenced response to the rulemaking package question.

4. *Mitigation of Beyond-Design-Basis Events Staffing Analysis.*
Proposed 10 CFR part 50, appendix E, section VII, staffing necessary to support mitigation of a beyond-design-basis external event. This requirement would supplement the separate staffing analysis requirement that already exists in 10 CFR part 50, appendix E, section IV.A.9. The reason for the two separate staffing analysis requirements is related to the historical imposition of the requirements for the staffing analyses in the emergency preparedness rulemaking of 2011 and the March 12, 2012, Request for Information under 10 CFR 50.54(f). The NRC is seeking feedback on whether it would be more efficient in practice for the two staffing analyses and their corresponding requirements to be combined, particularly for future reactor applicants. Would there be any unintended consequences to keeping the analyses separate or combining them? Is there a better way of achieving the underlying purpose of this requirement?

RESPONSE: Although there should be a clear demarcation between response planning and capabilities described in a site emergency plan associated with the requirements of 10 CFR 50 Appendix E, and those for beyond design basis events governed by proposed 10 CFR 50.155, only one staffing analysis should be required. Requiring two separate staffing analyses requires additional redundant work and cost. If a site can demonstrate readiness to deal with a beyond-design-basis undefined event at a specific staffing level, that staffing level has to be sufficient to respond to a design-basis event. Therefore, the proposed 10 CFR part 50, appendix E, section VII, staffing analysis should supersede, not supplement, the existing staffing analysis requirement currently located in 10 CFR part 50, appendix E, section IV.A.9.

5. *Training Requirements.*
Section 50.155(d) of this proposed rule would require licensees to provide for the training and qualification of personnel that perform activities in accordance with the strategies and guidelines identified in paragraphs (b)(1) and (2) (*i.e.,* mitigation strategies for beyond design-basis external events and extensive damage mitigation guidelines) using the SAT process as defined in § 55.4. The NRC notes that whereas many individuals at licensee facilities that would be subject to this proposed rule are trained under the SAT process (*e.g.,* individuals specified under § 50.120), some individuals (*e.g.,* firefighting and emergency preparedness personnel) may be currently trained under programs that are not required by NRC regulation to use the SAT process (*e.g.,* National Fire Protection Association standards for training and 10 CFR part 50,

appendix E). It is not the NRC's intent to extend the requirement for SAT-based training to the entirety of such programs. Rather, the intent of the proposed requirement would be to ensure that any training that is not currently part of existing programs but would be needed for performing activities in accordance with the strategies and guidelines identified in paragraphs proposed § 50.155(b)(1) and (2) be identified and provided for in accordance with the SAT process. The NRC requests comment on potential unintended consequences of the proposed rule language for programs not currently required to be SAT-based and if unintended consequences are identified, proposed alternative language for requiring the necessary amendments to such programs.

RESPONSE: FENOC agrees with the proposed rule change as presented, but believes that the comments provided by NEI need to be added to the FRN text to clarify the intent and to reduce the potential for unintended consequences.

6. *Drill or Exercise Frequency.*
Proposed § 50.155(e)(3) and (4) would require that following an initial drill or exercise, licensees would be required to conduct subsequent drills, exercises, or both, that collectively demonstrate a capability to use at least one of the strategies and guidelines in each of proposed § 50.155(b)(1) and (2) in succeeding 8-year intervals. This would require that the drills or exercises performed to demonstrate this capability include transitions from other procedures and guidelines as applicable, and the use of communications equipment that would be required by proposed 10 CFR part 50, appendix E, section VII, and that licensees shall not exceed 8 years between any consecutive drills or exercises. These requirements would be separate from the 8-year emergency preparedness exercise cycle requirements in 10 CFR part 50, appendix E, section IV.F. The NRC is seeking feedback on whether the drill or exercise frequency proposed by § 50.155(e)(3) and (4) is appropriate.

RESPONSE: FENOC agrees with the proposed rule change as presented. Personnel performing activities in accordance with FLEX and EDMG strategies and guidelines will receive training developed by the SAT process or other processes used by training programs that are acceptable for meeting regulatory required training (e.g., 10 CFR part 50, appendix E, section IV.F, "Training.") These processes and training programs have proven effective in preparing individuals for job performance. In addition, many of the job tasks/skills that emergency response personnel would perform during a BDB event response drill are the same as, or similar to, those performed during EP Program drills and exercises conducted to meet the requirements of 10 CFR 50, Appendix E. The proposed BDB drill or exercise frequency provides sufficient performance enhancing opportunities in light of the new training requirements, and responder participation in more frequent EP Program drills and exercises.

7. *Equipment Requirements.*
Proposed § 50.155(c)(1) would require the capacity and capability of the equipment relied on for the mitigation strategies required by proposed § 50.155 (b)(1) to be sufficient to simultaneously maintain or restore core cooling, containment, and spent fuel pool cooling capabilities for all the power reactor units within the site boundary.

Additionally, proposed § 50.155(c)(3) would require the equipment relied on for the mitigation strategies in proposed § 50.155(b)(1) to receive adequate maintenance such that the equipment is capable of fulfilling its intended function. The intent of these two proposed provisions is to make elements of Order EA–12–049 generically-applicable. Order EA–12–049 did not contain a specific maintenance requirement, but instead contained a performance-based requirement ‘‘to develop, implement and maintain strategies,’’ and failure to perform adequate maintenance would likely lead to a failure to meet this more general requirement, which is also contained in proposed § 50.155(b)(1). Additionally, the supporting guidance for this proposed rule for proposed § 50.155(b)(1) carries forward the same approach that was used for implementation of Order EA–12–049, and contains a number of programmatic controls that in an analogous fashion to the maintenance provision in proposed § 50.155(c)(3), if not followed, would likely lead to a loss of equipment capacity and capability and result in a failure to comply with the proposed § 50.155(b)(1). Therefore, the NRC would like stakeholder views on the need for a separate maintenance provision.

RESPONSE: FENOC agrees with the proposed rule change as presented, with the exception of the use of the subjective word “adequate” in 10 CFR 50.155(c)(3) and the caveat that FENOC does not see a need for a separate maintenance provision. The proposed rule requires maintenance to be performed “such that the equipment is capable of fulfilling its intended function.” This requirement is sufficient to ensure that appropriate maintenance is performed without introducing a subjective evaluation of whether maintenance that enables equipment to perform its intended function is or is not “adequate” if it doesn’t meet an inspectors observations.

8. *Equipment Protection Implementation Deadline.*
The NRC is proposing to require licensees to reasonably protect the equipment relied upon to implement the mitigation strategies required by proposed § 50.155(b)(1). That equipment would need to be reasonably protected from the effects of natural phenomena that are, at a minimum, equivalent to the design basis of the facility. This proposed rule would require each licensee that received the March 12, 2012, NRC letter issued under § 50.54(f) to provide reasonable protection against that reevaluated seismic or flooding hazard(s) by 2 years following the effective date of the final rule, if the reevaluated hazard exceeds the design basis of its facility. This is based on the anticipated completion dates for the licensees’ hazard reevaluations and their confirmation by the NRC and the potential need for planning and implementing modifications during refueling outages. The NRC recognizes that certain licensees may need input into their analyses of reevaluated hazards from other government agencies, without any certainty of when that input would be provided. This reliance on information from other entities could remove from the licensee’s control the ability to comply with the rule by a specific date. The NRC requests comments on the proposed implementation schedule, including suggestions for the criteria that licensees would need to satisfy to extend the schedule.

RESPONSE: FENOC does not agree with the requirement that each holder of an operating license comply with all provisions of this section no later than 2 years

following the effective date of the rule. The degree to which the reevaluated seismic or flooding hazard(s) may impact the implementation of mitigating strategies varies widely across the operating reactor fleet, and the various evaluations necessary to prepare for any necessary modifications are in different stages of completion, in part due to work that must be completely by the US Army Corps of Engineers. Even for sites who have received the expected information, the US Army Corps of Engineers does not release the basis behind the information, which could lead to additional requests and additional waiting periods.

Completion of the engineering, design, planning and installation of any identified modifications or other plant changes is a complex process; sufficient time should be provided to completed the work efficiently, for example:

- Utilities will not start the modification process until their Mitigation Strategy Assessments have been approved by the NRC (note that utilities will not start this process when their hazard report results have been approved as stated on page 70634 of the FRN because it is the MSA that will determine the results of the hazard on mitigating strategies, not the hazard report). At this point they will need to prepare, plan, and implement the necessary modifications or procedure changes and train their staff.

- Some of the plant modifications will require access to plant equipment or spaces that are not available except during outages.

- If greater than minor modifications are indicated, a two year implementation window would tend to require that the modifications be performed at risk or fast-tracked, where engineering/design would be performed in parallel with installation of the change. This is inefficient and unnecessarily increases the risk for errors and rework.

By allowing each licensee to develop and submit to NRC a unit-specific implementation schedule, the NRC would allow for more precise implementation schedules that could account for this variation. Under this approach, some licensees would accelerate their implementation quicker than required by the proposed rule when, for example, their reevaluated hazards are bounded by the design basis of the facility. On the other hand, this approach would accommodate other licensees that cannot address their reevaluated hazards within the time required by the proposed rule because, for example, they are still awaiting input from other government agencies. Therefore, FENOC concurs with the industry suggestion that each holder of an operating license submit a schedule for achieving full compliance with the requirements of 50.155 within 90 days from the effective date of the rule.

9. *Methodology for addressing reevaluated hazards.*
In SRM–COMSECY–14–0037, the Commission affirmed that: (1) Licensees for operating nuclear power plants need to address the reevaluated flooding hazards within their mitigating strategies for beyond design-basis external events; and (2) licensees for

operating nuclear power plants may need to address some specific flooding scenarios that could significantly damage the power plant site by developing targeted or scenario specific mitigating strategies, possibly including unconventional measures, to prevent fuel damage in reactor cores or spent fuel pools. The NRC is proposing to require licensees for operating nuclear power plants to address the reevaluated flooding hazard levels by reasonably protecting the mitigating strategies equipment to those levels if they exceed the design-basis flood level for the facility. Alternatively, the NRC could: (1) Place this requirement within § 50.155(b)(1) as a condition the associated strategies and guidelines must be capable of addressing; or (2) include a separate requirement for targeted or scenario-specific mitigating strategies as an option to address the reevaluated flooding hazards. The NRC seeks comment on whether the first of these options would be a better means to communicate the need for a licensee's strategies and guidelines to be capable of execution in the context of the new flooding hazard levels than including the requirement in § 50.155(c)(2). The NRC seeks additional comment on whether it would be appropriate to allow further flexibility in the licensee's strategies and guidelines by establishing an alternative means of compliance that does not include the surrogate condition of a loss of all alternating current power for specific beyond-design-basis conditions such as the reevaluated flooding hazards. For example, if a licensee could protect their internal power distribution system and emergency diesel generators from the reevaluated flooding hazard, it may not be necessary for the licensee to assume the loss of all alternating current power.

RESPONSE: FENOC endorses the comments provided by NEI in regard to this question. In addition, FENOC particularly urges the NRC not to include the loss of all alternating current power for specific beyond-design-basis conditions such as the reevaluated flooding hazards, as this would represent an expensive expansion from Order EA-12-049 without a commensurate improvement in safety as described in the NEI response.

10. *Command and Control.*
Requirements for command and control and organizational structures currently exist in numerous locations, including 10 CFR part 50, appendix E, section IV.A, as well as within the typical administrative controls portions of technical specifications for power reactor licensees. These requirements do not plainly limit the scope of the roles, responsibilities and authorities to events within the design or licensing basis of the facility, although past NRC practice has been to treat these requirements in that manner. This proposed rule includes a further requirement on the subject in order to clarify the scope of what is required for organizational structures at power reactor licensees. Alternatively, the NRC is considering whether the expansion of scope of regulatory oversight of the organizational structures would require imposition of a new requirement or the expansion of scope would be better accomplished by communicating the understanding that the scope of the existing requirements covers the full spectrum of events that would be included in this rulemaking. The latter method of accomplishing this would have the potential advantage of leaving the requirements for command and control and organizational structures in a single regulation (*i.e.,* 10 CFR part 50, appendix E, section IV.A). The NRC seeks stakeholder input on this subject.

RESPONSE: FENOC agrees that the expansion of scope of regulatory oversight of the organizational structures be accomplished through the imposition of a new requirement, as currently proposed.