

MBDBE Rulemaking Comments - November 2016 Package

Black font is used to summarize the comment. Blue font is used for background information or explanations. Red font indicates actual rulemaking package language. Yellow highlighting shows the suggested changes.

- Drill and exercise frequency – Revise words to eliminate the ambiguity created by the reference in section 50.155(e)(4) to 50.155 (b)(1), (2), and (3) – see page 167 in the rulemaking package

In addition to the clarifying phrase in the paragraph below we also propose the “or” and “and” changes as shown. We believe they will help clarify what the requirement means. The idea is conduct one drill in the first 4 years, followed by 2 or 3 drills every 8 years depending on your strategy sets.

(4) A holder of an operating license issued under this part or a combined license under 10 CFR part 52 for which the Commission has made the finding specified in § 52.103(g) as of [EFFECTIVE DATE OF THE FINAL RULE], shall conduct an initial drill or exercise that demonstrates the capability to transition to and use one or more of the strategies and guidelines in paragraphs (b)(1), through (b)(2) if different from the strategies in (b)(1) or (b)(3) of this section, or for a combined license holder paragraphs (b)(1) and or (b)(3), including demonstration of the communications capability required by paragraph (c)(4) of this section, by [DATE 4 YEARS AFTER EFFECTIVE DATE OF THE FINAL RULE]. Following this initial drill or exercise, the licensee shall conduct subsequent drills, exercises, or both that collectively demonstrate a capability to use at least one of the strategies and guidelines in each of paragraphs (b)(1), through (b)(2) if different from the strategies in (b)(1) and (b)(3), or for combined license holders paragraphs (b)(1) and (b)(3) of this section in succeeding 8-year intervals. The drills and exercises performed to demonstrate this capability must include transitions from other procedures and guidelines as applicable, including demonstration of the communications capability required by paragraph (c)(4) of this section. Each licensee shall not exceed 8 years between any consecutive drills or exercises.

- Secondary Containment – The MBDBE rule should not require that secondary containment capability be restored and/or maintained. This was not a requirement in either Order EA-12-049 (Mitigating Strategies) or in 10CFR50.54(hh)(2).

Page 62: The SOC states that secondary containment is required for reactor designs that employ this feature as a fission product barrier for the SFP source term.

The above statement is in the discussion of sunset provisions for decommissioning plants. It appears to be establishing additional requirements for mitigating strategies beyond what is required by Order EA-12-049 and for proposed 10 CFR 50.155 for operating reactors. This concern is substantiated by the following section of the rule:

Page 162: Section (a)((2)(i)(A) – If the reactor design employs secondary containment as a fission product barrier for the spent fuel pool source term, then the licensee shall comply with the requirements of Section 50.155(b) through (e) associated with maintaining or restoring secondary containment and spent fuel pool cooling capabilities.

Recommend removing the requirement for Secondary Containment for all decommissioning reactors that have docketed 50.82(a)(1) or 52.110(a) certifications.

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Secondary containment is not a required safety function in NEI 12-06 or the mitigating strategies rule. Secondary containment cannot be maintained during an ELAP due to the loss of power to the Standby Gas Treatment (SBGT) System and the normal building ventilation system. Additionally, most BWR strategies open secondary containment doors and hatches to improve ventilation flow for heat and steam removal to improve habitability of the building under ELAP conditions.

Maintenance of secondary containment was also not required to comply with 10CFR50.54(hh)(2). Guidance document NEI 06-12, *B.5.b Phase 2 & 3 Submittal Guideline*, Section 3.3.7 addresses the capability of using portable equipment to spray the external surfaces of buildings. This capability is intended to mitigate the loss of secondary containment capability (i.e., not to maintain or restore it) resulting from the initiating event (fire or explosion). This guidance will remain unchanged in NEI 06-12.

The following are our suggested changes to the SOC and draft rule language.

Pg. 62: This final rule establishes a sunset of requirements for licensees of decommissioning power reactors. Licensees do not need to meet requirements that relate to the reactor source term and associated fission product barriers once all fuel has been permanently removed from the reactor vessel and placed in the SFP. ~~This rule requires secondary containment for reactor designs that employ this feature as a fission product barrier for the SFP source term.~~

Pg. 162: (2)(i) Once the NRC has docketed the certifications described in § 50.82(a)(1) or § 52.110(a) of this chapter, submitted by a licensee subject to the requirements of this section, that licensee need only comply ~~with the following provisions until all irradiated fuel has been permanently removed from the spent fuel pool(s) or the provisions of paragraph (a)(2)(ii) are satisfied:~~

~~(A) If the reactor design employs secondary containment as a fission product barrier for the spent fuel pool source term, then the licensee shall comply with the requirements of § 50.155(b) through (e) associated with maintaining or restoring secondary containment and spent fuel pool cooling capabilities; or~~

~~(B) If the reactor design does not employ secondary containment as a fission product barrier for the spent fuel pool source term, then the licensee shall comply with the requirements of § 50.155(b) through (e) associated with spent fuel pool cooling capabilities until all irradiated fuel has been permanently removed from the spent fuel pool(s) or the provisions of paragraph (a)(2)(ii) are satisfied.~~

- Irradiated Fuel: Evaluate the ways reference to “irradiated fuel” is used in the rulemaking package to distinguish the requirements.

With the proposed change discussed above for secondary containment, we did not see a need for additional changes to the usage of the term “irradiated fuel”. It makes sense that spent fuel pool cooling capability be maintained as long as there is irradiated fuel in the SFP and the proposed rule allows for a site specific evaluation that supports modification of the strategy to utilize off-site resources (Section (a)(2)(ii)). The rule also addresses those reactors that have already permanently ceased power operation but have irradiated fuel in the SFP.

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- THMS – containment capability
 - Changes should be made to the SOC to clarify that a THMS need only maintain core and spent fuel pool cooling (not containment capability) The following are our suggested changes to the SOC.

Pg. 59: “In such cases. The MBDBE Rule provides licensees the flexibility to develop strategies or alternative approaches that address specific flooding and seismic scenarios and the effects on the nuclear facility (whereas the guideline sets in 50.155(b)(1) and (3) are intended to address undefined beyond design basis events), and the alternative approaches may only maintain or restore core and spent fuel pool cooling capabilities.

Pg. 119: “The words, “event specific approaches”, mean that a licensee strategy may only maintain core cooling and spent fuel pool cooling capabilities, and can address the reevaluated hazard information by considering the damage state that would occur due to the hazard scenario.”

- Documentation of Changes
 - A change to the example in the SOC (p 136) should be made to clarify the applicability of 155(g) versus 50.59. The following are our suggested changes to the SOC:

Pg. 136: “For example, a change to an SSC having both a beyond design-basis function for 50.155 and a safety-related design-basis function should be reviewed by subjecting those portions of the change that relate only to the beyond design-basis function to 50.155(g) and the rest of the change to 50.59 or applicable regulation. Another example may be...”

- Implementation
 - Implementation delays for BWR’s installing severe accident capable hardened vents should be allowed.

Background: The proposed MS Rule has a fixed compliance timeline for all elements except for the MSA work for flood and seismic. This position is generally based on the assumption that all US plants will be FLEX compliant by the end of 2016, so 2/4 years is a reasonable expectation and does not impose an undue burden. Approximately ½ of the BWR fleet will not be compliant with FLEX at the time of the effective date of the MS Rule. The full training and procedure suite for meeting FLEX will not be in place until well into the compliance date allowance (as late as June 2018 for phase 1 of HCVS). The fixed compliance timeline for the MS Rule for these plants will only allow 1 year for compliance of the bulk elements and 3 years for the drill and demonstration elements. This does not put the industry on common ground and is inconsistent with the treatment of the MSAs, since the MSA schedule can be extended without submitting an exception if impacted by not completing the supporting elements until past 2016. The NRC has requested examples of how this is an impact for any element of the MS Rule except for MSAs.

Impacts the industry determined are applicable are:

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- Plant staff is working on procedure, training and validation actions to meet EA-12-049 and EA-13-109 phase 1 compliance and are not working on MS Rule actions until after the shorter time line is complete. Comparison to NEI 12-06 Rev 2 appendix E validations will not be completed until the hardware for the HCVS is installed. Training of staff for the order may not comply with all elements of the MS Rule. Full integration of EOP, FSG and EDMG cannot occur until the FSGs are complete, which may not be until the compliance outage when V&V and staffing confirmation occurs.
- Drills and Demonstration actions for FLEX, EDMGs and suggestion on SAMGs (per NEI 13-06) require use of the HCVS for most BWRs. This action is not in effect until the compliance date. Working through the development of scenarios, incorporating these into plant processes, performing practice events and then performing the required action is difficult to accomplish in a 3 year window.

All but 4 of the US BWRs have MK 1&2 containments. The majority of MK I&2 BWRs have received schedule extensions. There are Plants that are not going to be compliant until Fall 2017 and Spring of 2018. There is one unit that is not expected to be compliant until 2019. Some individual units at multiple sites would be compliant but the site would still be focused on the final unit compliance and issuance of the FIP. The number of BWRs that will be submitting FLEX site compliance letters after summer 2017 is estimated to be about half the BWR fleet.

Recommend the MS Rule state compliance is required 2 years (4 years for drills and demonstrations) [and 3 years (5 years for drills or exercises for BWRs with Mark I and II containments)] after the MS Rule is published. The following are our suggested changes to the draft rule language.

Pg 168, 50.155: “(h) Implementation. Unless otherwise specified in this section:

(1) Each holder of an operating license for a nuclear power reactor under this part on [INSERT EFFECTIVE DATE OF THE FINAL RULE] and each holder of a combined license under part 52 of this chapter for which the Commission made the finding specified in 10 CFR 52.103(g) as of [INSERT EFFECTIVE DATE OF THE FINAL RULE], shall continue to comply with the provisions of paragraph (b)(3) of this section, and shall comply with all other provisions of this section no later than [INSERT DATE 2 YEARS AFTER EFFECTIVE DATE OF THE FINAL RULE], or 3 years for Boiling Water Reactors with Mark 1 or 2 containment designs,.

(2) For licensees that cannot achieve compliance with paragraph (b)(2) to address a reevaluated hazard by [INSERT DATE 2 YEARS AFTER EFFECTIVE DATE OF THE FINAL RULE]], or 3 years after effective date of the final rule for Boiling Water Reactors with Mark 1 or 2 containment designs, the NRC will consider an alternative compliance date if...”

Pg. 167, 50.155(e): “(4) A holder of an operating license issued under this part or a combined license under 10 CFR part 52 for which the Commission has made the finding specified in § 52.103(g) as of [EFFECTIVE DATE OF THE FINAL RULE], shall conduct an initial drill or exercise that demonstrates the capability to transition to and use one or more of the strategies and guidelines in paragraphs (b)(1) and through (b)(23) of this section and use to include the communications capability equipment required in

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paragraph (c)(4) of this section 10 CFR part 50, appendix E, section VII, by [DATE 4 YEARS AFTER EFFECTIVE DATE OF THE FINAL RULE] or 5 years after effective date of the final rule for Boiling Water Reactors with Mark 1 or 2 containment designs. Following this initial drill or exercise, the licensee shall conduct subsequent drills, exercises, or both that collectively demonstrate a capability to use at least one of the strategies and guidelines in each of paragraphs (b)(1) and through (b)(23) of this section in succeeding 8-year intervals. The drills and or exercises performed to demonstrate this capability must include transitions from other procedures and guidelines as applicable, to include and the use of communications capability equipment required in paragraph (c)(4) of this section 10 CFR part 50, appendix E, section VII. Each licensee shall not exceed 8 years between any consecutive drills or exercises.”

- Justifying a delay in implementation - The criteria listed in the SOC for justifying a delay (p137) should be modified. The word “safety” should not be associated with BDB capability. The following are our suggested changes to the SOC.

Pg. 137: “Licensees requesting to use 50.155(h)(2) can show good cause by supporting their request with 1) a basis for how safety is maintained during the extended compliance period why the delay is acceptable, 2) the reasons why...”

- SFPI
 - Adding the word “containment” in the rule language for 50.155(f) will clarify the requirement as it relates to other spent fuel storage pools used in certain designs. The following is our suggested change to the SOC and draft rule language. This change is consistent with the description of this design feature in the respective plant UFSARs.

Pg. 167, 50.155(f): “This provision does not apply to General Electric Mark III upper containment pools.”

- Loss of all AC versus ELAP
 - Changes should be made to the rulemaking package to clarify that loss of the inverters does not occur at time zero (potentially affected rulemaking pages include 28, 73, 74, and 76 and draft RG 1.226 sections A and C.1.2).

The following are our suggested changes to the SOC.

Pg. 28: “2. Initial Conditions exceeding the conditions those described above that include the loss of all ac power beyond the conditions of ELAP, including power from batteries either directly or through inverters, are not considered initial conditions (i.e., in development of the response strategies and guidelines these conditions are not present at time zero) but are addressed through contingencies within the mitigation strategies that involve sending personnel to locally and manually operate non-ac driven core cooling pumps (e.g., a turbine driven auxiliary feedwater or reactor core isolation cooling pump) to maintain or restore core cooling. These contingencies include the capability to obtain instrument readings using portable multimeters at locations that do not rely on the functioning of intervening electrical equipment.”

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Note that the following language from page 72 of the rulemaking package prepared for the November 2016 ACRS subcommittee meeting supports the above changes. The applicable sentences state: “Specifically, the damage state of a loss of all ac power condition concurrent with LUHS in the Mitigation Strategies Order was implemented first through the assumption of an ELAP to the onsite emergency ac buses, while allowing ac power from the inverters to be assumed available, in order to establish event sequence and the associated times for when mitigation actions would be assumed to be required. Secondly, to address the MBDBE Rule and the Mitigation Strategies Order requirement for a loss of all ac power, including ac power from the batteries (through inverters), contingencies are included in the mitigation strategies to enable actions to be taken under those circumstances (e.g., sending operators to immediately take manual control over a non ac-powered core cooling pump).”

Pgs. 73, 75, and 76: With the changes previously identified for Page 28 and as further defined on Page 72, no changes are required for these pages.

RG 1.226 should add wording from Page 72 of the ACRS Rulemaking Package starting with the bottom of Page 9 as follows:

RG 1.226, Section C.1.2, bottom of Page 9: “The difference between the conditions described in NEI 12-06 and those in 10 CFR 50.155(b)(1) is addressed through the development of contingency actions. Specifically, the damage state of a loss of all ac power condition concurrent with LUHS in the Mitigation Strategies Order was implemented first through the assumption of an ELAP to the onsite emergency ac buses, while allowing ac power from the inverters to be assumed available, in order to establish event sequence and the associated times for when mitigation actions would be assumed to be required. Secondly, to address the MBDBE Rule and the Mitigation Strategies Order requirement for a loss of all ac power, including ac power from the batteries (through inverters), contingencies are included in the mitigation strategies to enable actions to be taken under those circumstances (e.g., sending operators to immediately take manual control over a non ac-powered core cooling pump). These contingency actions, which are discussed below, could be implemented if ac power fed by station batteries through inverters is not available.”