AFFIRMATION ITEM

RESPONSE SHEET

TO: Annette Vietti-Cook, Secretary

FROM: Chairman Burns

SUBJECT: SECY-16-0142: DRAFT FINAL RULE—MITIGATION OF BEYOND-DESIGN-BASIS EVENTS (RIN 3150-AJ49)

Approved_X_ Disapproved___ Abstain___ Not Participating___

COMMENTS: Below___ Attached_X_ None___

Entered in "STARS"
Yes_X__ No___

SIGNATURE

26 June 2017
DATE

Commissioner Burns's Comments on SECY-16-0142
Draft Final Rule—Mitigation of Beyond-Design-Basis Events (RIN 3150-AJ49)

I commend the staff for the tremendous effort undertaken to prepare this final rulemaking package. The staff performed a thorough analysis of the comments received from 20 different entities on the proposed rule and formulated a final rule that addresses concerns raised in the comments and provides a clear improvement over the proposed rule. In addition, the staff sought innovative and thoughtful solutions to deal with some unique challenges associated with the rule and took steps to address the longer-term implications of making the requirements of the Fukushima orders generically applicable.

I approve the final rulemaking package and publication of the final rule notice in the *Federal Register*, subject to the attached edits and the comments below. I also approve the revisions noted in the staff's February 22, 2017 supplement to SECY-16-0142, subject to the attached edits. For text that appears in both the original draft *Federal Register* notice (FRN) in Enclosure 1 to SECY-16-0142 and in the supplement, my proposed edits are included in the supplement.

I agree with Commissioner Baran that, to be consistent with the NRC Enforcement Manual, the action sought in final rule § 50.155(i) should be to "withdraw" the subject orders rather than to "rescind" them. I have also proposed edits to the draft final rule to make this correction.

In addition to the attached edits, the staff should make any necessary revisions to reflect the recent issuance of the combined license for Dominion Virginia Power's North Anna Unit 3. The staff should also remove any rule provisions that are unnecessary and would become "dead" requirements upon issuance. These provisions primarily address combined licenses that have been issued and for which the NRC has made the finding under 10 CFR 52.103(g). Unless publication of the final rule is delayed for several years, we will have no combined license holders in this situation on the effective date of the final rule. Difficulties have arisen in the past as a result of "dead" rule language (e.g., requirements resulting from the accident at Three Mile Island), and we should avoid creating future difficulties here, if possible.

I would like to address some of the final rule provisions that have been added or revised since the proposed rule. The first issue is the staff's proposal to provide all boiling water reactors (BWRs) with Mark I or Mark II containments an extra year to comply with the requirements of this rule. The staff's rationale for this additional year is that the Mark I and Mark II units are separately required to comply with the Severe Accident Capable Vent Order (Order EA-13-109), and these plants will rely on the vents as part of their mitigation strategies. Order EA-13-109 was issued over a year later than the Mitigation Strategies Order (Order EA-12-049). External stakeholders commented that, if the compliance dates were kept the same for all classes of plants, those licensees that received Order EA-13-109 would have less time after attaining full compliance with Order EA-13-109 than other licensees to complete training and verify that they have completed all preparations to comply with the Mitigation of Beyond-Design-Basis Events (MBDBE) rule. The staff agreed and, in an effort to alleviate the cumulative effects of regulation for this group of licensees, revised the final rule to provide an additional year for implementation, giving this group of licensees the same amount of time after full compliance with the orders to attain compliance with the rule. I find this provision to be a reasonable accommodation for all BWR licensees who received Order EA-13-109 given these licensees' prior implementation of the majority of the requirements in the MBDBE rule under the Mitigation Strategies and Spent Fuel Pool Instrumentation Orders, which significantly enhance licensees' capabilities to mitigate beyond-design-basis events.

Another provision that is new in the final rule is the provision in § 50.155(h)(2) that allows for flexible scheduling of implementation of the requirements for licensees to address the effects of reevaluated hazards on their mitigation strategies. This provision includes a mechanism allowing for tacit NRC approval of proposed new implementation schedules after a certain period of time. The staff states that this provision provides the NRC with the opportunity to notify the licensee of the unacceptability of a proposed schedule that is not appropriately justified while reducing the regulatory burden on the licensee and the NRC in cases where a license provides adequate justification for the additional time to comply. This "negative consent" approval process is not a novel concept. The NRC regulation related to approval of changes to licensees' quality assurance programs in § 50.54(a) employs a similar approval regime. Paragraph 50.54(a)(4)(iv) states:

> Changes to the quality assurance program description included or referenced in the Safety Analysis Report shall be regarded as accepted by the Commission upon receipt of a letter to this effect from the appropriate reviewing office of the Commission or 60 days after submittal to the Commission, whichever occurs first.

Although not perfectly analogous, we also have similar constructs in other sections of our regulations, such as §§ 50.59, 50.54(p) and 50.54(q) where certain categories of changes to methods of compliance do not require prior NRC approval.

The staff has produced a sound rationale for its proposal in § 50.155(h)(2). This is that (1) licensees in this situation will already have implemented the remaining requirements in the MBDBE rule, (2) there are benefits to allowing licensees to understand the potential impact of reevaluated hazard information prior to implementing plant changes, and (3) the NRC has used "negative consent" approval mechanisms in other parts of our regulations. Therefore, I find this aspect of the staff's proposed flexible scheduling provision reasonable.

Finally, I would like to address the staff's proposed rule provisions in § 50.155(i) to withdraw a post-9/11 order and remove post-9/11 license conditions. In my view, the staff has not provided a sufficient basis for taking this action now when the agency has declined to do so at seemingly more appropriate times in the past. For example, the NRC did not seek to remove Mitigation Strategies License Conditions when it issued the 2009 Power Reactor Security Requirements final rule (74 FR 13926, March 27, 2009). Nor did we seek to remove these license conditions in 2011 when we rescinded the portion of the order on which they are based (EA-02-026). In fact, in the 2011 letter to licensees that partially rescinded EA-02-026,[1] the staff stated, "Licensees should assess how the rescission and partial rescission of the above referenced orders will affect their facility licenses and security plans to ensure compliance with the associated regulatory requirements." To the best of my knowledge, licensees have not requested removal of these post-9/11 license conditions. Likewise, I am not aware of any past attempt by the agency to rescind Order EA-06-137 or remove the associated license conditions. Yet the staff is proposing to rescind EA-06-0137 and remove the post-9/11 license conditions here without any substantive discussion of the regulatory or safety basis for doing so now.

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[1] Letter to Holders of Licenses for Operating Power Reactors from Eric J Leeds, NRC, "Rescission or Partial Rescission of Certain Power Reactor Security Orders Applicable to Nuclear Power Plants, November 28, 2011 (ADAMS Accession No. ML111220447).

For these reasons, I do not approve the provisions in draft final rule §§ 50.155(i)(2), (i)(3), and (i)(4) that rescind order EA-06-137, remove the Mitigation Strategies License Conditions, and remove license conditions associated with Order EA-06-137. I am not, however, opposed to considering rescission or withdrawal of Order EA-060137 and removal of these license conditions outside of this rulemaking, if the staff can provide the Commission with an appropriate justification for doing so. If staff continues to believe there is value and a valid regulatory basis for these actions, it should present the Commission with a voting paper clearly outlining its arguments and the regulatory process for accomplishing this.

The staff should make any necessary conforming changes in other rulemaking documents to reflect the changes identified in the FRN and in the staff's supplement. The staff should also make any necessary corrections and clarifications to the rulemaking documents identified since the issuance of SECY-16-0142. The revised final rulemaking package should be provided to the Commission for information at least 10 days before submittal to the Office of the Federal Register for publication.

Stephen G. Burns

26 June 2017

[7590-01-P]

SGB Edits

NUCLEAR REGULATORY COMMISSION

10 CFR Parts 50 and 52

[Docket Nos. PRM-50-97 and PRM-50-98; NRC-2011-0189 and NRC-2014-0240]

RIN 3150-AJ49

Mitigation of Beyond-Design-Basis Events

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) is amending its regulations that establish regulatory requirements for nuclear power reactor applicants and licensees to mitigate beyond-design-basis events. The NRC is making generically applicable the requirements in NRC orders for mitigation of beyond-design-basis events and for reliable spent fuel pool instrumentation (SFPI). This rule establishes regulatory requirements for an integrated response capability, including supporting requirements for command and control, drills, training, and documentation of changes. This rule also establishes requirements for enhanced onsite emergency response capabilities. Finally, this rule addresses a number of petitions for rulemaking (PRMs) submitted to the NRC following the March 2011 Fukushima Dai-ichi event. This rulemaking is applicable to power reactor licensees, power reactor license applicants, and decommissioning power reactor licensees.

cost is primarily attributed to licensees' efforts to address the reevaluated hazards as required by § 50.155(b)(2) and to a lesser degree to review the rule against the previous implementation of the Mitigation Strategies and SFPI Orders and make any additional changes to plant programs and procedures. The final rule is expected to result in a total one-time cost of approximately $128 million followed by a total recurring annual cost of $1.2 million. The net present value of these costs is approximately $141 million using a 7-percent discount rate even though the MBDBE requirements have largely been implemented prior to the effective date of the rule under the requirements in the Mitigation Strategies Order and the SFPI Order. The regulatory analysis includes estimates associated with the impacts incurred as a result of licensees being required to address the reevaluated hazard information, which may result in the need to revise mitigation strategies or implement plant modifications. Such changes would provide a reasonable level of protection against these beyond-design-basis events; higher levels of protection could result in licensees incurring substantially higher costs.

Based on the NRC's assessment of the costs and benefits of the rule, the NRC has concluded that the MBDBE rule is justified. For more information, please see the regulatory analysis.

As required by § 50.109, "Backfitting," and §52.98, "Finality of combined licenses; information requests," a backfitting and issue finality assessment was prepared. This document presents the reasons why the MBDBE rule provisions do not constitute backfits and are consistent with issue finality. For certain changes that were not explicitly included in the Mitigation Strategies Order and SFPI Order, this document also describes the NRC's position that they do not constitute backfits and are consistent with issue finality. Even if these requirements had been viewed to constitute backfitting or to ~~violate~~ be inconsistent with issue

to the MBDBE proposed rule and draft guidance. The detailed consideration of the public comments is contained in a separate document that is referenced in section XIX, "Availability of Documents," of this notice. While the NRC received many comments that enabled it to significantly improve the MBDBE rule and its supporting statement of considerations, this section focuses on the subset of those comments that directly resulted in changes to the MBDBE rule requirements~~,~~ or changes to the MBDBE rule supporting statement of considerations. This section also discusses noteworthy feedback received in response to specific questions in the *Federal Register* notice for the proposed rule and through the CER questions.

B. Seismic and Flooding Reevaluated Hazards

The NRC received comments stating that 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) rather than § 50.155(c)(2). The commenters noted that addressing the effects of reevaluated hazards on the mitigation strategies in § 50.155(b) rather than § 50.155(c)(2) provides greater flexibility regarding how a licensee can address the hazard effects through changes to mitigation strategies and guidelines, to include changes to equipment protection. Additionally, commenters indicated that the regulation should allow for alternative approaches that would not necessarily address the damage state assumed for § 50.155(b)(1), nor necessarily assume the same success criteria, and that should also allow for the use of risk-informed approaches.

The NRC agrees with this comment and concludes that including the requirement to address the effects of reevaluated hazards on the mitigation strategies in § 50.155(b), specifically new § 50.155(b)(2), improves the alignment of the regulation with the supporting

Reliable Hardened Containment Vents Capable of Operation under Severe Conditions," dated June 6, 2013.

4. Further, the NRC concludes that the portion of overall plant risk associated with the rare events that might challenge multiple source terms is very small. As a result, the potential safety enhancement associated with the multiple source term dose assessment requirements cannot be considered to be substantial.

Accordingly, the NRC concludes that there is not sufficient risk associated with events that challenge multiple source terms to find that substantial additional protection to public health and safety could be achieved through the imposition of the subject requirements. Accordingly, the backfitting provisions of § 50.109(a)(3) cannot be satisfied.

Finally, operating plants have installed this multiple source term dose assessment capability and have committed to maintain the capability. The NRC anticipates that licensees will maintain this multiple source term assessment capability, even without an explicit requirement. This installed capability for multiple source term dose assessment is a computer capability installed in the existing emergency preparedness infrastructure and serves to meet the existing requirements in appendix E to 10 CFR part 50 to monitor and assess the reactor source term. The NRC concludes that the optimal regulatory approach for operating licensees is to continue to maintain the multiple source term dose assessment as a voluntary initiative following the endorsed guidance that supports this rule.

The final rule was revised to remove the multiple source term dose assessment requirements.

orders, including actions that could be less restrictive than the corresponding actions needed for compliance with the orders. Further, the NRC received a comment that there is a lack of clarity regarding the difference between compliance with the orders and issuance of § 50.155 and the associated RGs. To avoid unintended consequences associated with two similar—but potentially not identical—sets of requirements, it was commented that the NRC should ~~rescind~~withdraw the Mitigation Strategies and SFPI Orders once § 50.155 becomes effective.

Additionally, stakeholders provided CER feedback concerning a potential schedule conflict for new plants regarding the need to perform analyses that were proposed as section VII to 10 CFR part 50, appendix E and the completion of the inspections, tests, and analyses under the 10 CFR part 52 framework.

Finally, the NRC held a public meeting to discuss CER. During this meeting, a representative of the Boiling-Water Reactor Owners Group pointed out that those licensees that received Order EA-13-109, which was issued more than a year after the Mitigation Strategies and SFPI Orders, would have less time after attaining full compliance with Order EA-13-109 than other licensees to complete training and verify that they have completed all preparations to comply with the MBDBE rule.

The NRC agrees that the current state of licensee implementation of regulatory actions taken following the March 2011 Fukushima Dai-ichi event varies widely across the industry. For many licensees, addressing the reevaluated hazard information is the primary driver of the implementation schedule. The proposal to allow each licensee to submit an implementation schedule to the NRC is an approach that has been used for past regulations, and the NRC agrees that it enables sufficient flexibility to address potential CER issues and removes the need for unnecessary resource expenditure on regulatory approval of schedule exemptions. The final rule is revised to provide a flexible schedule option in § 50.155(h)(2).

Recognizing that the schedule flexibility may still not address all situations that arise, the provisions of § 50.12, “Specific exemptions,” can address such circumstances. In this regard, the NRC reiterates its support for risk-informed approaches for such submittals.

The NRC further agrees that the group of licensees that received Order EA-13-109 would achieve full compliance with each of the orders issued in response to the Fukushima Dai-ichi event approximately one year after the remaining licensees. In order to alleviate CER for this group of licensees, the final rule is revised to provide an additional year for implementation, giving this group of licensees the same amount of time after full compliance with the orders to attain compliance with the rule.

The NRC also agrees that redundancy would exist between requirements in the Mitigation Strategies and SFPI Orders and those in the MBDBE rule. The final rule contains language that is intended to ensure a smooth transition between the order requirements and the MBDBE rule, including ~~rescinding~~ withdrawing the orders, to alleviate this issue.

Finally, the schedule issue associated with new reactors was resolved as a result of the relocation of and revision to the staffing and communication requirements. As a result of the revision made to the MBDBE rule, the scheduling requirements that were of concern, are removed.

Additionally, the NRC received feedback suggesting that licensees that received Order EA-13-109 be allowed an additional year for conducting the initial drill or exercise under § 50.155(e)(4). Holders of operating licenses for power reactors (including those that received Order EA-13-109) are required to conduct the initial drill or exercise within 4 years of the effective date of the final MBDBE rule under this paragraph. During this implementation period, holders of operating licenses for power reactors will have conducted two biennial emergency preparedness exercises under 10 CFR part 50, appendix E, section F.2.b. This requirement for

diesel-driven pump with a similar one of a larger size could improve the effectiveness of a mitigation strategy by allowing for greater flow rates of makeup water, but reduce its effectiveness because of a higher fuel usage rate and an associated shorter run time without refueling. Judging such changes using a prior review and approval type of approach is challenging at best and would very likely result in an unwarranted diversion of licensee and NRC resources to review and approve changes.

Other beyond-design-basis provisions currently applicable to operating reactors in § 50.62, "Requirements for reduction of risk from anticipated transients without scram (ATWS) events for light-water-cooled nuclear power plants," § 50.63, and § 50.54(hh) do not contain change control requirements. The only comparable set of requirements addressing beyond-design-basis events containing provisions that address the control of changes is § 50.150, "Aircraft impact assessment," which is applicable to new reactors. Reviewing that requirement, and noting that § 50.150 requires that changes meet the assessment requirements contained within § 50.150, the NRC concluded that the provisions in § 50.155(g) for documentation of changes are well aligned with the § 50.150 provisions because the NRC is requiring that changes be demonstrated to satisfy the requirements of § 50.155.

Finally, the NRC concludes that its regulatory approach that relies on inspection and enforcement will identify any substantial problems with a licensee's MBDBE change control process well before such problems present a safety problem. The NRC anticipates that changes will be infrequent and that those that occur will be consistent with endorsed guidance or apply approved alternatives. Inspection and enforcement ~~is~~are an effective regulatory approach for identifying and addressing situations in which licensees fail to meet these expectations. Based on consideration of the feedback provided, the NRC did not find a suitable criterion (or criteria) that the NRC judged would result in a substantial improvement over what

was proposed for addressing changes in the proposed rule, and accordingly the final rule continues with the same approach: licensees must demonstrate that the proposed change will result in continued compliance with the requirements of § 50.155, licensees must maintain documentation of those changes, and the NRC will oversee through inspection the changes and take enforcement action as appropriate.

Notwithstanding this conclusion, the NRC clarified section VI of this notice to address changes that apply neither to endorsed guidance nor approved alternatives. This section now includes examples of cases that the NRC concludes would not result in demonstrated compliance.

The NRC also concludes that a change control reporting requirement is not necessary in the MBDBE rule. Licensees will not need to report changes to the mitigation strategies because of the NRC's planned oversight of the maintenance of the resulting strategies through inspection and enforcement under the Reactor Oversight Process. Such a requirement would be an unnecessary reporting burden, and instead, the MBDBE rule requires licensees to maintain documentation of such changes, which the NRC can inspect.

The NRC agrees that there was confusion created when it described the potential for licensees that may wish to consult with the NRC concerning changes to the implementation of the MBDBE rule requirements. This was not intended to suggest that the NRC was requiring a prior review of changes, and this notice is revised accordingly.

Finally, the NRC agrees with suggested revisions to the change control provisions that result in clarification of the requirements. The NRC clarified the final requirements to refer to them as "Documentation of Changes," simplified the provisions by combining two of the proposed provisions, clarified the provision that addresses the application of other change control processes, and removed the word "all" from the rule regarding the need to maintain

capabilities between tests. Finally, the commenter expressed the view that these drills need to be comprehensive and as realistic as possible.

Another commenter suggested drills be conducted annually or every 2 years. The remaining commenters supported the proposed 8-year frequency.

The NRC did not revise the MBDBE drill frequency in response to these comments. The NRC judged that the 8-year frequency, and use of a drill rather than an exercise requirement as the minimum requirement, provides for the appropriate level of regulatory assurance for the MBDBE rule and is aligned with the frequency of similar current emergency preparedness exercise requirements. While the NRC recognizes that a requirement for more frequent, comprehensive, and realistic drills or exercises would provide a higher level of assurance that licensees are maintaining the MBDBE requirements, the NRC is also sensitive to diverting limited licensee resources from ~~activities that have greater importance to public health and safety~~ preparation for scenarios with a greater likelihood of occurrence. The NRC concluded that the MBDBE drill requirement strikes the correct balance in terms of providing an appropriate level of regulatory assurance, and by aligning with the current emergency preparedness exercise requirements, it provides licensees with flexibility should they choose to implement the drill requirements in conjunction with emergency preparedness drills or exercises.

Additionally, the NRC concludes that the MBDBE drill requirements should be viewed in the larger context of the training requirements in the MBDBE rule that include the use of the systems approach to training (SAT) as defined in § 55.4, “Definitions,” which provides a

feedback mechanism to increase the frequency of training and other performance-enhancing experiences such as drills or exercises, if necessary.[2]

K. Consideration of Explicit Requirements for a Three-Phase Response

The NRC received a comment that the MBDBE rule should maintain the three-phase response structure for mitigation that was described in the Mitigation Strategies Order rather than use the proposed rule's performance-based requirements. The commenter stated that the substitution of "higher level, performance-based requirements" reduces confidence that the MBDBE measures will be successful if needed. It is the commenter's view that the nuclear industry and the NRC have consistently disagreed on what constitutes appropriate compensatory measures and associated administrative controls and provided an example to support the comment. The commenter expressed the view that the three-phase structure provides clearer definition of what is expected, better enabling licensees to meet those expectations and NRC inspectors to independently verify that this desired outcome has been achieved.

The NRC did not revise the MBDBE rule as a result of this comment. The issuance of the Mitigation Strategies Order included a separate attachment 3 for the imposition of requirements on Vogtle Electric Generating Plant, Units 3 and 4 to reflect their use of the AP1000 design. In the Mitigation Strategies Order, attachment 3, the NRC documented that the inherent features of the AP1000 design obviate the need for phase two of the three-phase response required of

[2] Systems approach to training means a training program that includes the following five elements: (1) Systematic analysis of the jobs to be performed. (2) Learning objectives derived from the analysis which describe desired performance after training. (3) Training design and implementation based on the learning objectives. (4) Evaluation of trainee mastery of the objectives during training. (5) Evaluation and revision of the training based on the performance of trained personnel in the job setting.

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M. Clarifications to Equipment Requirements and Removal of Proposed Maintenance Requirement

The NRC requested feedback concerning the proposed maintenance provision in § 50.155(c)(3). The Mitigation Strategies Order did not contain a specific maintenance requirement, but instead contained a performance-based requirement "to develop, implement and maintain strategies." This same language was included in proposed § 50.155(b)(1), so that a failure to perform adequate maintenance would likely lead to a failure to meet this requirement.

The feedback indicated that commenters did not see a need for a separate maintenance provision in § 50.155(c)(3) for the § 50.155(b)(1) equipment. Commenters noted that the proposed maintenance requirement of § 50.155(b), along with the guidance in NEI 12-06, as endorsed by JLD-ISG-2012-01 for the Mitigation Strategies Order (now endorsed in RG 1.226), adequately addresses equipment maintenance. The NRC agrees with this feedback. The intent is to carry forward the maintenance requirements of the Mitigation Strategies Order, and accordingly the proposed separate maintenance requirement is removed from the final rule.

Regarding maintenance, the NRC also received feedback suggesting that the MBDBE rule be revised to state that § 50.65, "Requirements for monitoring the effectiveness of maintenance at nuclear power plants," does not apply to FLEX equipment or SFPI whose primary design function is to support strategies developed to solely comply with the MBDBE rule. The NRC agrees that the criteria in § 50.65(b) do not include FLEX equipment in the scope of § 50.65 if the FLEX equipment is used solely for compliance with § 50.155.[3]

[3] In the event that a licensee relies upon the mitigation strategies equipment for other purposes such as mitigation of a design-basis event, the application of scoping criteria in § 50.65 for reliance on the equipment for those purposes would govern. As a result, equipment that has dual purposes could fall within the scope of § 50.65 for one purpose, while being out of scope for the purpose of use in the mitigation strategies. ~~For example, a TDAFW pump in a pressurized-water reactor would fall within the scope of the monitoring requirements of~~

Accordingly, the suggested revision is not necessary. Furthermore, such an addition could result in complications if a licensee chooses to use FLEX equipment in a future regulatory application (separate from § 50.155) that would result in the equipment meeting the scoping criteria in § 50.65.

In response to one comment, the NRC changed § 50.155(c)(1) in the final rule to more clearly communicate the equipment capacity and capability requirements. One of the changes extends the capacity and capability requirements to § 50.155(b)(2) because the § 50.155(b)(2) requirements cannot be satisfied unless the equipment credited in § 50.155(b)(2) has sufficient capacity and capability. The remaining changes to paragraph (c) in § 50.155 are discussed in the "Reasonable Protection," "Spent Fuel Pool Instrumentation," and "Relocating Staffing and Communications" sections of this portion of the notice.

N. Discussion of Four Topics that Were Generically Dispositioned

~~§ 50.65(a) under the criteria of § 50.65(b) for those functions that meet the criteria, but not for the performance of beyond-design basis functions for the strategies and guidelines required by § 50.155. As a result, the monitoring under § 50.65(a) would be with the goal of providing reasonable assurance that the TDAFW pump is capable of fulfilling its intended safety function (i.e., specific function) within the reference bounds of the design bases as defined in § 50.2 for the functions that result in its inclusion in the scope of § 50.65. The capability of the TDAFW pump to remain functional in the context of a loss of all ac power concurrent with an LUHS, which could expose the pump to environmental and operational constraints outside the reference bounds of the design bases for the events resulting in inclusion in the scope of § 50.65(a) due to a longer period with an absence of normally available cooling, would not be addressed by the § 50.65(a) monitoring program, but instead by the maintenance and testing programs established under § 50.155 through the guidance of RG 1.226 and NEI 12-06.~~

~~Similarly, some licensees rely on a portable, ac-power independent pump for the strategies and guidelines developed under § 50.155(b)(1), (2), or (3). These strategies and guidelines may be referred to in the licensee's EOPs, but are not necessary in order to conform to the NRC-approved emergency planning guidelines that form the basis for the EOPs. Therefore, because the portable, ac-power independent pump is not used in the EOPs, it would not be one of the nonsafety-related SSCs included within the scope of § 50.65(a)(1) under § 50.65(b)(2)(i), unless otherwise required by § 50.65(b).~~ Further details on scoping of equipment under ~~the~~ § 50.65 are provided in RG 1.160, "Monitoring the Effectiveness of Maintenance at Nuclear Poiwer Plants," which endorses NUMARC 93-01, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants."

The NRC received a number of comments that fell into four topical areas. The comments were considered and generically dispositioned. These comments did not result in changes to the MBDBE rule. A discussion of these topics is provided below.

1. Comments that Suggest a Completely Different Approach to Mitigation of Beyond-Design-Basis Events

Several commenters provided feedback that the MBDBE rule should contain requirements that address various specific external events. The suggestions included geomagnetic disturbances (which are addressed separately in section III, "Petitions for Rulemaking," of this notice because they are the subject of a petition for rulemaking currently under consideration by the NRC), cyber events that might disable the electric grid, attacks involving devices that may disable the electric grid, malicious attacks on a nuclear facility, and explosions from gas lines running in the vicinity of a nuclear facility. ~~In all cases, the NRC response to this feedback is the same.~~ These comments ~~fundamentally~~ suggest that the NRC take a different regulatory approach in the MBDBE rule than the NRC took under the Mitigation Strategies Order following the Fukushima Dai-ichi event. While the comments tend to explicitly identify external events or conditions that commenters believe should be addressed by the MBDBE rule, the practical effect of fully addressing these comments would be for the NRC to revisit the possible set of external events that might occur, identify which of these events from the entire set should be in scope of the MBDBE rule, establish mitigation strategies requirements that include the proposed additional events, and then specifically establish requirements for the damage states and conditions that are postulated to stem from the proposed additional set of events.

Rather than following the approach suggested by these commenters, the NRC is continuing with the regulatory approach taken with the issuance of the Mitigation Strategies

Order. The order requires licensees to postulate a challenging damage state that exceeds the design basis, and to develop and implement the mitigation strategies to address that damage state. These strategies give licensees a capability for the mitigation of beyond-design-basis external events. This regulatory approach provides additional mitigation capability as well. Given the ~~fundamentally~~ unbounded nature of the beyond-design-basis external events to which these requirements are directed, the NRC determined that licensees need to address uncertainty by assuming a challenging damage state that such events might create, and then adding to that damage state the consideration of the effects the initiating event may have on the physical protection of equipment and strategies. For a more detailed explanation of this response, refer to the NRC response to General Comment 9 in the Comment Response Document (see section XIX of this notice).

2. Comments that Suggest the NRC Revisit Issues Associated with SFP Safety

These comments included suggestions that the NRC, as part of the MBDBE rule, should reconsider SFP fires, events that can lead to SFP fires, malicious attacks involving SFPs, SFP integrity during and following extreme events, and longer-term SFP aging issues. The Commission has previously considered and dispositioned these issues, and the NRC concluded that it was not within the scope of the MBDBE rule to revisit these SFP safety issues. Moreover, the MBDBE rule is addressing and enhancing SFP safety through the imposition of regulations that: 1) require licensees to have strategies that maintain or restore SFP cooling capabilities for beyond-design-basis external events, and 2) provide information, through the use of SFPI, that enables operators to appropriately prioritize the use of resources following a beyond-design-basis external event. Explanations of the NRC's considerations of the commenters' issues are provided ~~as a convenience to stakeholders~~ in the NRC response to General Comment 8 in the Comment Response Document. (See section XIX of this notice.)

3. Comment Regarding Decommissioning

The NRC received comments from stakeholders that were directed towards the basis for previous NRC exemption decisions regarding power reactor licensees in decommissioning. While the MBDBE rule does include provisions that facilitate the reduction of its requirements at the appropriate points within the decommissioning process, the rulemaking's regulatory scope does not include revisiting the bases for previous decisions on decommissioning exemptions. Instead, the MBDBE rule is simply reflecting those decisions and enabling systematic removal of the mitigation strategies requirements as a facility proceeds through the process of decommissioning. The NRC enables these requirements to be removed through regulation, rather than requiring removal by the more resource-intensive exemption process, based on the same set of acceptance criteria that were used in granting the exemptions to licensees in decommissioning. Concerns about the NRC's decommissioning regulations should be raised in the ongoing regulatory effort to more broadly address decommissioning issues for all applicable requirements. (See "Regulatory Improvements for Decommissioning Power Reactors; Advance notice of proposed rulemaking" (80 FR 72358; November 19, 2015).) If, as a result of that regulatory effort, the NRC changes its position with regard to the bases for decommissioning and, specifically, if those changes affect the decommissioning provisions that are part of the MBDBE rule, then the NRC will make future conforming changes to the MBDBE rule to align it with the revised decommissioning requirements.

4. Comments on Geomagnetic Disturbances

The NRC received comments on the subject of geomagnetic disturbances. While these could be viewed as comments on a specific beyond-design-basis external event ~~and be addressed by the discussion in section IV.N.1, "Comments that Suggest a Completely Different Approach to Mitigation of Beyond-Design-Basis Events," of this notice~~, the NRC determined that

This rule places the requirements in the Mitigation Strategies Order and SFPI Order into the NRC's regulations so that they apply to all current and future power reactor applicants, and provides regulatory clarity and stability to power reactor licensees. In making the requirements of the Mitigation Strategies Order generically applicable, this rule includes consideration of the reevaluated hazard information developed in response to the March 12, 2012, NRC letter issued under § 50.54(f) and ensures that licensees address the reevaluated hazard information within their mitigation strategies. Because these orders were issued to then-current licensees, the requirements of these orders would not apply to future licensees. In the absence of this rule, these requirements would need to be imposed on new reactor applicants or licensees through additional orders or license conditions (as was done for all combined licenses (COLs) issued to date). As part of this rulemaking, the NRC considered stakeholder feedback and lessons learned from the implementation of the orders, including any challenges or unintended consequences associated with implementation. The NRC reflected this stakeholder input in the final rule as discussed in the previous section of this notice as well as in regulatory guidance for this rule.

2. Establishes new requirements for an integrated response capability.

This rule establishes requirements for an integrated response capability for beyond-design-basis events that integrates existing strategies and guidelines ~~(implemented through guideline sets)~~ with the existing EOPs and enhances onsite emergency response capabilities. This framework includes guideline sets for requirements that were formerly located in § 50.54(hh)(2) and are now located in § 50.155(b)(3), as well as those for the Mitigation Strategies Order. This framework also includes mitigation strategies, or alternative approaches, used to address reevaluated hazards, as applicable. This rule requires sufficient staffing,

emergency response aspects of this rule. The specific regulatory actions related to emergency response in this rule and the associated NTTF recommendations are:

a. Staffing and communications requirements that address NTTF recommendation 9.3 and were also discussed in NTTF recommendations 9.1 and 9.2. These regulatory issues were initially addressed through the implementation of the Mitigation Strategies Order. The MBDBE rule addresses supporting facilities and equipment, as discussed in the same NTTF recommendations.

b. Training and exercise requirements that address NTTF recommendation 9.3 and were also discussed in NTTF recommendations 9.1 and 9.2. These regulatory issues were implemented under the Mitigation Strategies Order.

Accordingly, the MBDBE rule addresses NTTF recommendations 4, 7, 8, 9.1, 9.2, 9.3 (except for maintenance of ERDS capability throughout a beyond-design-basis external event), 10.2, and 11.1.

The MBDBE rule also addresses NTTF recommendation 9.4 to modernize ERDS. This action differs from the other regulatory actions because ERDS is not an essential component of a licensee's capability to mitigate a beyond-design-basis external event. However, ERDS is an important form of communication between the licensee and the NRC. Modernization of ERDS was completed voluntarily by industry prior to issuance of this rule~~;~~. ~~therefore,~~ NRC includes amendments in this rule to remove the technology-specific references to outdated equipment in 10 CFR part 50, appendix E, section VI, "Emergency Response Data System."

Severe Accident Management Guideline and Multiple Source Term Dose Assessment

The Commission considered a proposed SAMG backfit analysis, provided as part of SECY-15-0065, "Proposed Rulemaking: Mitigation of Beyond-Design-Basis Events

(RIN 3150-AJ49)," dated April 30, 2015. The Commission concluded that the imposition of SAMG requirements was not warranted and, consequently, SAMGs were removed as requirements in the MBDBE rule (refer to SRM-SECY-15-0065, dated August 27, 2015). Instead, SAMGs continue to be implemented and maintained through an industry initiative. For more information on the industry implementation of SAMGs, refer to the MBDBE proposed rule.

Multiple source term dose assessment requirements were part of the proposed MBDBE rule and addressed NTTF recommendations 9.3 and 9.1. These proposed requirements are removed ~~from~~in the final MBDBE rule and instead have been implemented by licensees as discussed in section IV.E, "Multiple Source Term Dose Assessment," of this notice.

Scope of Procedure and Guideline Integration

The MBDBE rule limits the scope of the integrated response capability to the strategies, guidelines, and alternative approaches under § 50.155(b). This rule includes:

1. Paragraph 50.155(b)(1). The MBDBE rule contains requirements that result from the Mitigation Strategies Order and address beyond-design-basis external events (from natural phenomena). These requirements are those that the NRC, while developing part of the regulatory basis for this final rule, termed as "Station Blackout Mitigation Strategies." The nuclear industry refers to these as "FLEX Support Guidelines" (FSGs). The term FSGs, therefore, is used in this notice to refer to the strategies and guidelines required by § 50.155(b)(1).

2. Paragraph 50.155(b)(2). The MBDBE rule contains requirements for reevaluated seismic and flooding strategies and guidelines or alternative approaches in § 50.155(b)(2). These strategies and guidelines or alternative approaches apply to licensees that have reevaluated hazards that exceed in magnitude their design basis seismic and flooding external

procedures, alarm response procedures, and abnormal operating procedures (AOPs). These guideline sets were not included in the final rule for the reasons stated in section IV.B, "Rulemaking Scope," of the MBDBE proposed rule.

C. Final Rule Regulatory Bases

Applicability

This rule applies, in whole or in part, to applicants for and holders of an operating license for a nuclear power reactor under 10 CFR part 50 or COL under 10 CFR part 52.

This rule does not apply to applicants for, or holders of, an operating license for a non-power reactor under 10 CFR part 50, because non-power reactors pose lower radiological risks to the public from accidents than power reactors. These reduced risks result from two primary features of non-power reactors: 1) the core radionuclide inventories are lower than in power reactors as a result of their lower power levels and often shorter operating cycle lengths; and 2) non-power reactors have lower decay heat associated with a lower risk of core melt and fission product release in a loss-of-coolant accident than power reactors.

A holder of a general or specific 10 CFR part 72 independent spent fuel storage installation (ISFSI) license for dry cask storage is not subject to this rule for the ISFSI, because the decay heat load of the irradiated fuel is sufficiently low prior to movement to dry cask storage that it can be air-cooled. This situation would also meet~~s~~ the criteria for "sunsetting," or phased removal, of requirements (discussed later in this section of this document) if the rule applied to holders of such licenses.

The GE Morris facility in Illinois, which is the only SFP licensed under 10 CFR part 72 as an ISFSI, does not need to comply with this rule and is excluded by the rule applicability described in § 50.155(a). The NRC considered including the GE Morris facility within the scope of this rule but found that the age and corresponding low decay heat load of the fuel in the

facility made it unnecessary. The GE Morris facility also meets this rule's sunsetting criteria. While this rule leaves in force the EDMG requirements of § 50.155(b)(3), those requirements are not applicable to GE Morris because it is not a 10 CFR part 50 licensee. In the course of the development and implementation of the guidance and strategies required by § 50.155(b)(3), the NRC evaluated whether additional mitigation strategies were warranted at GE Morris and concluded that no mitigation strategies were warranted beyond existing measures, due to the extended decay time since the last criticality of the fuel stored there, the resulting low decay heat levels, and the assessment that a gravity drain of the GE Morris SFP is not possible due to the low permeability of the surrounding rock and the high level of upper strata groundwater.

Decommissioning reactors

The MBDBE rule contains a regulatory structure for phasing out the mitigation strategies requirements for a licensee as its reactor decommissioning process proceeds. This structure consists of three phases:

1. Once fuel is removed permanently from the reactor, the mitigation strategies associated with the reactor and primary containment are no longer needed. Consequently, the requirements of § 50.155 continue to apply, but only for the SFP.

2. When the decay heat of the spent fuel is reduced to a level that provides ample time to enable ad hoc action to be taken in response to an event ~~that can introduce kinetic~~to sustain ~~energy into~~ the SFP cooling function indefinitely, then all the requirements of § 50.155 can be removed with the exception of § 50.155(b)(3).

3. Once all fuel is removed from the SFP, all requirements of the MBDBE rule no longer apply.

The following provides a more detailed discussion of this structure and the regulatory decisions made for decommissioning licensees that provide the basis for this structure.

Once the NRC has docketed a licensee's § 50.82(a)(1) or § 52.110(a) certifications of permanent cessation of operations and permanent removal of fuel from the reactor vessel, that licensee need only comply with the requirements of § 50.155(b) through (e), and (g) associated with maintaining or restoring SFP cooling. As discussed previously, these proposed requirements are based on the Mitigation Strategies Order. The licensees for the Kewaunee Power Station, Crystal River Unit 3 Nuclear Generating Plant, San Onofre Nuclear Generating Station, Units 2 and 3, and Vermont Yankee Nuclear Power Station submitted § 50.82(a)(1) certifications after issuance of the Mitigation Strategies Order. The NRC has ~~rescinded~~withdrawn the Mitigation Strategies Order for this group of NPP licensees (Shutdown NPP Group).[4] These ~~rescissions~~withdrawals were based on the NRC's conclusion that the lack of fuel in the licensee's reactor core and the absence of challenges to the containment rendered unnecessary the development of guidance and strategies to maintain or restore core cooling and containment capabilities. Consistent with these ~~rescissions~~withdrawals, the MBDBE rule relieves licensees in decommissioning from the requirement to comply with the § 50.155(b) requirements to have mitigation strategies and guidelines to maintain or restore core cooling and containment capabilities. Moreover, these licensees do not need to comply with any of the other requirements in this final rule that support compliance with the § 50.155(b) requirements to have mitigation strategies and guidelines for maintaining or restoring core cooling and containment capabilities.

[4] The Mitigation Strategies Order for Fort Calhoun Station, Unit 1, which has permanently ceased operations and defueled, has not yet been ~~rescinded~~withdrawn, but the deadline for full compliance has been relaxed to August 31, 2017.

This MBDBE rule treats the EDMG requirements in a manner similar to the requirements for FSGs. For a licensee that has § 50.82(a)(1) or § 52.110(a) certifications docketed at the NRC, the lack of fuel in its reactor core and the absence of challenges to the containment would render unnecessary EDMGs for core cooling and containment capabilities. This licensee would not need to comply with the requirements in the MBDBE rule associated with core cooling or containment capabilities; rather, the licensee would be required to comply with the requirement to have EDMGs based on the presence of fuel in the SFP.

Once the NRC has docketed a licensee's § 50.82(a)(1) or § 52.110(a) certifications, that licensee does not need to comply with the MBDBE requirement in § 50.155(f) that the licensee provide reliable means to remotely monitor wide-range SFP levels to support effective prioritization of event mitigation and recovery actions. The requirement in § 50.155(f) makes generically applicable the requirements in the SFPI Order. This order requires a reliable means of remotely monitoring wide-range SFP levels to support effective prioritization of event mitigation and recovery actions in the event of a beyond-design-basis external event with the potential to challenge both the reactor and SFP.

The NRC also ~~rescinded~~withdrew the SFPI Order for the Shutdown NPP Group.[5] These ~~rescissions~~withdrawals were based, in part, on the NRC's conclusions that once a licensee certifies the permanent removal of the fuel from its reactor vessel, the safety of the fuel in the SFP becomes the primary safety function for site personnel. In the event of a challenge to the safety of fuel stored in the SFP, decision makers would not have to prioritize actions and the focus of the licensee staff would be the SFP condition. Therefore, once fuel is permanently removed from the reactor vessel, the basis for the SFPI Order no longer applies. Consistent

[5] On December 8, 2016, the NRC also ~~rescinded~~withdrew the SFPI Order for Fort Calhoun Station, Unit 1, which has permanently ceased operations and defueled.

with the NRC order ~~rescissions~~withdrawals, the NRC no longer requires licensees in decommissioning to have a reliable means to remotely monitor wide-range SFP levels to support effective prioritization of event mitigation and recovery actions in the event of a beyond-design-basis external event with the potential to challenge both the reactor and SFP.

The Mitigation Strategies Order also required power reactor licensees to have certain SFP cooling capabilities. In the ~~rescission~~withdrawal letters to the licensees for the Shutdown NPP Group, the NRC determined that, due to the passage of time, the fuel's low decay heat, and the long time to boil off the water inventory in the SFP obviated the need for the Shutdown NPP Group licensees to have guidance and strategies necessary for compliance with the Mitigation Strategies Order. The ~~rescission~~ withdrawal of the Mitigation Strategies Order for those licensees eliminated the requirement for them to comply with the order's requirements concerning beyond-design-basis event strategies and guidelines for SFP cooling capabilities. Consistent with the basis for the order ~~rescissions~~withdrawals, licensees in decommissioning are relieved from the requirements concerning beyond-design-basis event strategies and guidelines for SFP cooling capabilities and any related requirements. These licensees have to perform and retain an analysis demonstrating that sufficient time has passed since the fuel within the SFP was last irradiated, such that the fuel's low decay heat and boil-off period provide sufficient time for the licensee to obtain offsite resources to sustain the SFP cooling function indefinitely. Licensees in decommissioning may use the equipment in place for EDMGs should that equipment be available, recognizing that the protection for that equipment is against the hazards posed by events that result in losses of large areas of the plant due to fires or explosions rather than beyond-design-basis external events resulting from natural phenomena. If the EDMG equipment is not available, offsite resources would be used by the licensee for onsite emergency response (i.e., SFP cooling). This relief from the requirements related to the

implementation of the guidance and strategies required by new § 50.155(b)(3), the NRC evaluated whether additional mitigation strategies were warranted at Millstone Power Station, Unit 1 and concluded that no mitigation strategies were warranted beyond existing measures. This conclusion is based principally on the extended decay time since the last criticality occurred on November 4, 1995, and the fact that this results in low decay heat levels that allow sufficient time for the use of existing strategies. The exclusion for Millstone Power Station, Unit 1 in this rule is based upon that conclusion, with the understanding that additional mitigation capabilities will be present because of the licensee's implementation of the § 50.155(b)(3) strategies at the ~~collocated~~co-located Millstone Power Station, Units 2 and 3.

Integrated Response Capability

Each applicant or licensee subject to the MBDBE rule is required to develop, implement, and maintain an integrated response capability that includes FSGs, reevaluated hazards strategies and guidelines or alternative approaches as applicable, EDMGs, sufficient staffing, communications capabilities, and a supporting organizational structure with defined roles, responsibilities, and authorities for directing and performing these strategies, guidelines, and procedures. The MBDBE rule integrates this new capability *with* existing EOPs, as discussed in further detail later in this section of the notice. The basis for this framework is explained in the following discussion.

The requirements in § 50.155(b)(1) for FSGs makes generically applicable requirements previously imposed on licensees by the Mitigation Strategies Order, as well as by license conditions included in the COLs held by Detroit Edison Company (for Enrico Fermi Nuclear Plant, Unit 3), South Carolina Electric & Gas Company (for Virgil C. Summer Nuclear Station,

operators was further extended through the development of mitigation strategies for beyond-design-basis external events in response to the Mitigation Strategies Order. The development and implementation of this set of strategies and guidelines was accomplished giving consideration to other NTTF recommendations ~~to the extent practical~~. In order to provide better integration with the EOPs, the FSGs leave the designation of command and control and decision making functions within the EOPs or SAMGs, as appropriate. Consistent with the recommendation in the NTTF Report, this rule requires that EDMGs and FSGs, including strategies and guidelines or alternative approaches, as applicable, for reevaluated hazards, be integrated with EOPs. This maintains EOPs as the central element of a licensee's initial response capability.

In establishing a requirement for an integrated response capability, the NRC considered the fact that these strategies, guidelines, and procedures were developed at separate times over a period of several decades and that the associated efforts have been focused on responding to different types of initiating events and plant damage states. As a result, these strategies, guidelines, and procedures may not properly reflect consideration of the interfaces (e.g., procedure transitions), dependencies (e.g., reliance on common systems or resources) and interactions (e.g., alignment of response strategies) among strategies, guidelines, and procedures that may be used in combination, either consecutively or concurrently, to mitigate a design-basis or beyond-design-basis event.

Additionally, the NRC considered that these strategies, guidelines, and procedures are not used by a single licensee organizational unit but will often require coordination and transfer of responsibilities among licensee organizational units. For example, in the event of the loss of the main control room, the EDMGs may be implemented, and therefore initiated and directed by knowledgeable and available site personnel until coordination and augmentation efforts enable

and procedures (e.g., to coordinate actions or provide support) have clearly defined lines of communication among the organizations, as well as clearly defined authorities and responsibilities relative to each other, such that there are no gaps or conflicts.

Assumed Damage State for Development of the Strategies and Guidelines

Recognizing that beyond-design-basis external events are ~~fundamentally~~ unbounded, and that these events can result in a multitude of damage states and associated accident conditions, a significant regulatory challenge is developing bounded requirements that meaningfully address the regulatory issue. From a practical standpoint, development of mitigation strategies requires that there be a reasonable definition (or boundary conditions established) for an onsite damage state that the strategies would then address and thereby provide an additional capability to mitigate beyond-design-basis external event conditions that might occur. The assumed damage state should ideally capture a reasonable range of potential damage states that might occur as a result of beyond-design-basis external events, and it should present an immediate challenge to the key safety functions for the facilities, so that the resultant strategies provide greater capabilities and can improve safety. An assumed damage state that accomplishes this objective is the loss of all ac power.

The MBDBE rule and the Mitigation Strategies Order both require the mitigation of a loss of all ac power condition. Both the MBDBE rule and the Mitigation Strategies Order address this requirement in two parts: 1) through an assumed damage stage that is used to develop the strategies and guidelines for the mitigation of beyond-design-basis external events, and 2) supporting contingencies within the strategies that address conditions that are more severe than those assumed to develop the strategies and guidelines. The assumed damage state for this rule is the same as that assumed to implement the requirements of attachment 2 to the

allowing ac power from the inverters to be assumed available. This assumption is used 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). As such, this provision makes generically applicable the current implementation under the Mitigation Strategies Order with no intent to either relax or impose new requirements, and is performance-based to allow some flexibility for future designs. As an example, some reactor designs (e.g., Westinghouse AP1000 and General Electric Economic Simplified Boiling Water Reactor (ESBWR)) use passive safety systems to meet NRC requirements for maintaining key safety functions. The inherent design of those passive safety systems makes certain assumptions, such as LUHS, not ~~credible~~appropriate. Accordingly, the assumed condition for the FSG requirements for passive reactors is the loss of normal access to the normal heat sink, discussed further in this section. Nevertheless, in this rule the NRC is requiring that the strategies and guidelines be capable of implementation during a loss of all ac power.

Regarding the assumed LUHS for COLs or applications referencing the AP1000 or the ESBWR designs, the assumption was modified to be a loss of normal access to the normal heat sink (see, e.g., attachment 3 to the Mitigation Strategies Order; the Virgil C. Summer Nuclear Station, Unit 2 license, License No. NPF-93, condition 2.D(13); and the Enrico Fermi Nuclear Plant, Unit 3 license, License No. NPF-95, condition 2.D(12)(g)). This modified language reflects the passive design features of the AP1000 and the ESBWR that provide core cooling, containment, and spent fuel cooling capabilities for 72 hours without reliance on ac power.

These features do not rely on access to any external water sources for the first 72 hours because the containment vessel and the passive containment cooling system serve as the safety-related ultimate heat sink for the AP1000 design and the isolation condenser system serves as the safety-related ultimate heat sink for the ESBWR design.

As discussed previously, the range of beyond-design-basis external events is unbounded. The MBDBE rule is not intended, and should not be understood, to mean that the mitigation strategies can adequately address all postulated beyond-design-basis external events. It is always possible to postulate a more severe event that causes greater damage and for which the mitigation strategies may not be able to maintain or restore the functional capabilities (e.g., meteorite impact). Instead, the MBDBE requirements provide additional mitigation capability in light of uncertainties associated with external events, consistent with the NRC's regulatory objective for issuance of the Mitigation Strategies Order.

The MBDBE rule requires that the FSGs be capable of being implemented site-wide. This recognizes that severe external events are likely to impact the entire reactor site, and for multi-unit sites, damage all the power reactor units on the site. This requirement means that there needs to be sufficient equipment and supporting staff to enable the maintenance or restoration of core cooling, containment, and SFP cooling functions for all the power reactor units on the site. This is a distinguishing characteristic of this set of mitigation strategies from those in § 50.155(b)(3), for which the damage state is a more limited, albeit large area of a single plant, reflecting the hazards for which that set of strategies was developed.

The NRC gave consideration to whether there should be changes made to § 50.63 (the Station Blackout Rule) to link those requirements with this rule. This consideration stemmed from recommendation 4.1 of the NTTF Report to "initiate rulemaking to revise 10 CFR 50.63" and the understanding that this rule could result in an increased SBO coping capability, in

limited to the areas of the plant impacted by the event, and as such, are not intended to address a site-wide event. This clarification was necessary as a result of the relocation of these requirements to the MBDBE rule and their juxtaposition with the mitigation strategies for beyond-design-basis external events in § 50.155(b)(1), which are for a site-wide event. The events for which EDMGs would be used can impact key equipment that is shared between power reactor units (i.e., SFPs), and that is why the NRC did not use language that would have limited the application of these requirements to an individual power reactor unit. This clarification is to preserve the scope of this requirement, and specifically avoid an unintended imposition of a new requirement.

Applicability of the requirements of § 50.155(b)(3) was formerly governed by § 50.54(hh)(3), which made these requirements inapplicable following the submittal of the certifications required under § 50.82(a) or § 52.110(a)(1). As discussed in the Power Reactor Security Requirements final rule, the NRC concludes that it is inappropriate for the requirements for EDMGs to apply to a permanently shutdown, defueled reactor, where the fuel was removed from the site or moved to an ISFSI. The NRC is requiring EDMGs for a licensee with permanently shutdown defueled reactors, but with irradiated fuel still in its SFP, because the licensee must be able to implement effective mitigation measures for large fires and explosions that could impact the SFP while it contains irradiated fuel. The MBDBE rule corrects the wording of former § 50.54(hh)(3) to implement the sunsetting of the associated requirement as intended by the Commission in 2009. This change does not constitute backfitting for currently operating reactors because the change concerns decommissioning reactors. The change does not constitute backfitting for currently decommissioning reactors because the EDMGs are also required by the licensees' license conditions that were made generically applicable through the Power Reactor Security Requirements rulemaking. The MBDBE rule replaces the license

standards of usage for procedure implementation (e.g., may not be followed in a step-by-step manner). This is because the MBDBE strategies and guidelines must take into account: 1) the large number of possible event initiators, plant configurations, and event sequences; and 2) the high degree of uncertainties in event progression and consequences. The strategies and guidelines can take the form of high level plans that identify and describe potential, previously evaluated, success paths for addressing specific conditions such as loss of core cooling. As a result, strategies and guidelines provide operators and plant staff the information and latitude to respond as necessary to unpredictable and dynamic situations, allowing them to adapt to the actual conditions and damage states without ~~the burden of detailed~~being constrained by overly perscriptive procedures ~~and the~~or challenged ~~of determining~~to determine which procedure may be applicable and effective under the uncertain conditions of a beyond-design-basis event.

Given these differences in content and standards for usage, the intent of this rule is not to require conformance of the strategies and guidelines to the level of detail and standards of usage for EOPs, or consolidation of the strategies, guidelines, and procedures into a single set of instructions, but rather, as previously described, to require functional integration of strategies and guidelines with the EOPs. The objective is for the strategies, guidelines, and procedures to retain or employ the characteristics that support their effective use under the range of conditions to which they are each intended to apply while ensuring that the strategies and guidelines, in conjunction with the EOPs, constitute a useable and cohesive set of instructions for mitigating the consequences of a wide range of initiating events and plant damage states. To achieve this functional integration, the NRC expects that applicants and licensees will address the interfaces, dependencies, and interactions among the strategies and guidelines that are required under this rule and the EOPs, such that they can be implemented in concert with each other, as

The MBDBE rule contains requirements for licensee equipment that is relied upon for use in mitigation strategies and guidelines. This final rule makes generically applicable requirement (2) in attachments 2 and 3 of the Mitigation Strategies Order, which reads as follows: "These strategies must… have adequate capacity to address challenges to core cooling, containment, and SFP cooling capabilities at all units on a site subject to this Order."

The industry guidance of NEI 12-06, as endorsed by NRC interim staff guidance JLD-ISG-2012-01, included specifications for each licensee's provision of a spare capability in order to assure the reliability and availability of the equipment required to provide the capacity and capability requirements of the Mitigation Strategies Order. (Section X, "Backfitting and Issue Finality," of this notice contains a discussion of the guidance supporting the MBDBE rule, including its relation to the guidance developed to support implementation of the Mitigation Strategies and SFPI orders.) This "spare capability" was also referred to within the guidance as an "N+1" capability, where "N" is the number of power reactor units on a site. The NRC considered including requirements similar to the spare capability specification of NEI 12-06 in this rule but determined that such an inclusion would be too prescriptive and could result in the need to grant exemptions for alternate approaches that provide an effective and efficient means to provide the required capability. ~~One example of this is in the area of flexible hoses, for which a strict application of the spare capability guidance could necessitate a licensee's provision of spare hose or cable lengths sufficient to replace the longest run of hoses being used by the licensee, when significant operating experience with similar hoses for fire protection does not show a failure rate that would support the need for such a spare capability.~~

The development of the mitigation strategies in response to the Mitigation Strategies Order relied upon a variety of initial and boundary conditions that were provided in the regulatory guidance of JLD-ISG-2012-01 and NEI 12-06. These initial and boundary conditions

components." Because of this, reliance on equipment for use in the mitigation strategies does not result in the applicability of 10 CFR part 50, appendix A, "General Design Criteria for Nuclear Power Plants," General Design Criterion (GDC) 2, "Design bases for protection against natural phenomena," or the principal design criterion (PDC) applicable to a plant's operating license if the license was issued prior to the effective date of GDC 2. The MBDBE rule requires reasonable protection for the equipment relied on for the mitigation strategies against the effects of natural phenomena that are equivalent in magnitude to the phenomena assumed for developing the design basis for the facility under GDC 2 or the applicable PDC. In some cases, the reevaluated seismic and flooding hazards determined in response to the March 12, 2012, NRC letter issued under § 50.54(f), as assessed by the NRC, may show that increased protection is necessary. The licensees and the NRC are currently evaluating the effects of these reevaluated hazards during the development of the MBDBE rule. However, completion of these efforts at some plants may require~~necessitates~~ the use of a flexible scheduling provision in the MBDBE rule as discussed elsewhere in this notice.

As discussed in COMSECY-14-0037 and its associated SRM, the requirements of the Mitigation Strategies Order were imposed in parallel with the agency's March 12, 2012, requests for information on the reevaluation of external hazards. As a result, the Mitigation Strategies Order included a requirement in both attachment 2 and 3 for licensees to provide reasonable protection for equipment associated with the required mitigation strategies from external events ~~without specific reference to the necessary level of protection~~. The appropriate level of protection from external hazards, particularly flooding, was the subject of discussion in the course of NRC-held public meetings leading up to the issuance of JLD-ISG-2012-01 and its endorsement of the industry guidance for the Mitigation Strategies Order, NEI 12-06. Section 6.2.3.1 of NEI 12-06 specifies that the level of protection for flooding should be "the

are not completed and therefore not assumed in this submittal. As the reevaluations are completed, appropriate issues would be entered into the corrective action system and addressed on a schedule commensurate with other licensing bases changes." In SRM-COMSECY-14-0037, the Commission approved the first two items recommended by the NRC staff, regarding the need for operating nuclear power plant licensees to address the reevaluated flood hazards within the mitigation strategies and the potential for using targeted or scenario-specific mitigation strategies. The Commission did not approve the third recommendation; however, that recommendation would have been outside the scope of this rulemaking effort. The MBDBE rule reflects this Commission direction by the inclusion of the requirements in § 50.155(b)(2).

Because the events for which the mitigation strategies are to be used are outside the scope of the design basis events considered in establishing the basis for the design of the facility, equipment that is relied upon solely for those mitigation strategies does not fall within the scope of § 50.65 (the Maintenance Rule). Nevertheless, the equipment used to implement the mitigation strategies must receive adequate maintenance in order to assure that it is capable of fulfilling its intended function, and thereby ensure that the requirement to develop, implement, and maintain the mitigation strategies continues to be met.

This rulemaking does not revise the regulatory treatment of equipment relied upon for the EDMGs now relocated to § 50.155(b)(3). The regulatory treatment of that equipment remains as it is described in NEI 06-12, the endorsed guidance document for those strategies and guidelines.

The NRC recognizes that existing nuclear power reactors with operating licenses issued under 10 CFR part 50 and those new nuclear power reactors with COLs issued under 10 CFR part 52 or operating licenses issued under 10 CFR part 50 may establish different

result in continued compliance with the rule, subject to NRC oversight, or are otherwise submitted to the NRC under the § 50.12 exemption process.

A licensee may intend to change its facility, procedures, or guideline sets to revise some aspect of beyond-design-basis mitigation governed by the MBDBE rule in a manner that can impact multiple aspects of the facility, including “design basis” aspects of the facility subject to other regulations and change control processes. As previously discussed, the NRC anticipates that licensees will ensure that changes to the implementation of the MBDBE requirements are consistent with endorsed guidance, or otherwise demonstrate continued compliance with the MBDBE rule. This same change also could impact safety-related SSCs, either directly (e.g., a proposed change that impacts a physical connection of mitigation strategies equipment to a safety-related component or system) or indirectly (e.g., a proposed change that involves the physical location of mitigation equipment in the vicinity of safety-related equipment that presents a potential for adverse physical/spatial interactions with safety-related components). As a result, § 50.59 and other change control processes, as appropriate, would need to be applied to evaluate the proposed change for acceptability under any other applicable change control process.

Additionally, proposed changes can impact numerous aspects of the facility beyond the safety-related impacts, including implementation of fire protection requirements, security requirements, emergency preparedness requirements, or safety/security interface requirements. A licensee must therefore ensure that all applicable change control provisions are used to judge the acceptability of facility changes ~~including, for example, change control requirements for fire protection, security, and emergency preparedness~~. Additionally, recognizing the nature of mitigation strategies and the reliance on human actions, a licensee also needs to ensure that the proposed changes satisfy the safety/security interface requirements of § 73.58. While the

Mitigation Strategies and SFPI Orders, which significantly enhances licensees' capabilities to mitigate beyond-design-basis events. The NRC took into consideration the potential benefit of allowing licensees to understand the potential impact of addressing the reevaluated hazard information prior to implementing plant changes. By evaluating this impact first, licensees may avoid unnecessary costs incurred in changing planned modifications. As part of the schedule submittal, licensees will discuss the basis for the extended schedule, including why the licensee concludes that safety is maintained for the implementation time period. The flexible scheduling provision of § 50.155(h)(~~3~~2) provides the NRC with the opportunity to notify the licensee of the unacceptability of a proposed schedule that is not appropriately justified in the event that it poses undue risk to public health and safety. Paragraph 50.155(h)(~~3~~2) also reduces the regulatory burden on the licensee and the NRC by allowing for tacit approval of the schedule after a reasonable period of time available for consideration.

In contrast with the portions of the final MBDBE rule that make the Mitigation Strategies and SFPI Orders generically applicable, § 50.155(b)(3) continues the requirements that were previously in § 50.54(hh)(2). Currently operating power reactor licensees have all achieved compliance with these requirements. Therefore, § 50.155(h)(1) requires that licensees subject to the requirements of § 50.155(b)(3) continue to comply with those requirements during the implementation period for the remainder of the final MBDBE rule.

Onsite and offsite communications capability

The MBDBE rule requires communication capabilities for events that result in loss of all ac power onsite, or potential destruction of offsite communications infrastructure. ~~Because of~~ To address the lessons learned from the destruction to communications capability that occurred during the Fukushima Dai-ichi event, the MBDBE rule contains requirements for licensees to

Therefore, any communication capability enhancement made by a licensee in response to the assessment did not need to meet the design capabilities for the communications system required by 10 CFR part 50, appendix E or testing frequencies described for primary and backup onsite and offsite communications systems. Any enhanced communications system, equipment, or power supply implemented as a result of the § 50.54(f) assessment was not necessary to meet the requirement to notify offsite emergency response organizations within 15 minutes of an emergency declaration or to meet the monthly communications testing requirement for contiguous State/local governments within the plume exposure pathway emergency planning zone.

Order ~~Rescission~~Withdrawal and Removal of License Conditions

The NRC is including in the final rule specific terms that ~~rescind~~withdraw orders and remove license conditions that are substantively redundant with provisions in the final rule. As discussed in this section, a primary objective of this rulemaking is to make the requirements of the Mitigation Strategies and SFPI Orders generically applicable to power reactor licensees and applicants, taking into account lessons learned in the orders' implementation and stakeholder feedback received through the regulatory process. As such, the requirements of § 50.155 fully replace the requirements of those orders. Although the orders provide for their relaxation or ~~rescission~~withdrawal ~~on a~~ licensee-specific basis, use of that process would be an inefficient and unnecessary administrative burden on licensees and the NRC—with no impact on public health and safety—because the final rule simultaneously replaces the orders in their entirety for all applicable licensees. Therefore, the NRC finds that good cause is shown to ~~rescind~~withdraw the Mitigation Strategies and SFPI Orders for all licensees that received those orders once the MBDBE rule goes into effect and licensees are in compliance with it. The ~~rescission~~withdrawal

date for these orders was set to be the latest date for compliance by licensees in receipt of the orders to prevent a regulatory gap; licensees proposing an alternative compliance schedule would need to address achievement of compliance with the requirements of the MBDBE rule corresponding to these orders prior to the ~~rescission~~withdrawal date in the rule in order to show good cause for the alternate compliance schedule.

~~Order EA-06-137 concerns mitigation strategies for large fires or explosions at nuclear power plants. This order was issued to certain licensees who received Order EA-02-026, which required licensees to take specific interim compensatory measures, including mitigation strategies for large fires or explosions at nuclear power plants, in light of the then-high-level threat environment. Order EA-06-137 required that licensees receiving the order incorporate into their security plans certain key mitigation strategies for large fires or explosions. The requirement that these strategies be incorporated in security plans was subsequently relaxed by letter dated August 28, 2006, which permitted licensees to consent to having their licenses amended to incorporate a license condition on the subject. Several licensees had these license conditions imposed by administrative license amendment (e.g., "Browns Ferry Nuclear Plant, Units 1, 2, and 3 – Conforming License Amendments To Incorporate the Mitigation Strategies Required by Section B.5.b. of Commission Order EA-02-026 and the Radiological Protection Mitigation Strategies Required by Commission Order EA-06-137," dated August 16, 2007). In its Power Reactor Security Requirements final rule, the NRC established in § 50.54(hh)(2) a regulation that provides a performance-based requirement that encompasses the mitigation strategies required under Order EA-06-137 and its associated license condition. The MBDBE rule moves § 50.54(hh)(2) to the new § 50.155(b)(3). As a result, neither Order EA-06-0137 nor the license condition is necessary once the MBDBE rule goes into effect. Accordingly, the NRC finds that good cause is shown to rescind~~withdraw ~~Order EA-06-137 for each licensee that~~

~~received the order. Because the new § 50.155(b)(3) provides the same requirements as the license condition associated with Order EA-06-0137, the license condition is deemed removed from each applicable power reactor license once the MBDBE rule goes into effect.~~

~~Order EA-02-026 included a section, numbered B.5.b, in its attachment 2, requiring mitigation strategies for large fires or explosions at nuclear power plants. Extensive interactions among the NRC, industry, and licensees refined the strategies required by the order. In 2007, the NRC issued to all then-operating power reactor licensees an administrative license amendment (e.g., "Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2 - Conforming License Amendments to Incorporate the Mitigation Strategies Required by Section B.5.b. of Commission Order EA-02-026," dated July 11, 2007), containing a license condition entitled, "Mitigation Strategy License Condition," which required licensees to use 14 mitigation strategies. In the Power Reactor Security Requirements final rule, the NRC established in §§ 50.54(hh), 50.34(i), and 52.80(d) regulations that made the requirements of Order EA-02-026 generically applicable to power reactor licensees and applicants. In the Power Reactor Security Requirements final rule, the Commission explained that operating power reactor licensees already had procedures in place that complied with the new § 50.54(hh)(2). Licensees used the same implementation guidance to comply with the Mitigation Strategy License Condition as they used to comply with § 50.54(hh)(2); consequently, compliance with § 50.54(hh)(2) is sufficient to comply with the Mitigation Strategy License Condition. Subsequently, the NRC rescinded~~withdrew ~~Order EA-02-026, section B.5.b by letter dated November 28, 2011, based on the fact that the regulations encompassed the order requirements. Because licensees comply with both the regulations and Mitigation Strategy License Condition via the same guidance, such that the former § 50.54(hh)(2) requirements encompass the license condition requirements, the NRC concludes that § 50.155(b)(3) fully replaces the requirements that exist in the Mitigation Strategy License~~

~~Condition. Accordingly, under new § 50.155(i), the Mitigation Strategy License Conditions imposed in 2007 are deemed removed from the licenses for those licensees that received that license condition.~~

The NRC is also removing certain license conditions contained within the COLs held by Detroit Edison Company (for Enrico Fermi Nuclear Plant, Unit 3), South Carolina Electric & Gas Company (for Virgil C. Summer Nuclear Station, Units 2 and 3), Nuclear Innovation North America LLC, et al. (for South Texas Project, Units 3 and 4); and Duke Energy Florida, Inc. (for Levy Nuclear Plant, Units 1 and 2). These licensees did not receive the Mitigation Strategies and SFPI Orders because the NRC had not issued COLs to these licensees at the time the NRC issued the Orders. When the NRC issued those COLs, it included license conditions that are equivalent to the orders' requirements. Because the license conditions contain the same requirements as the orders, and the provisions of § 50.155 replace the requirements imposed by the orders, the license conditions contain requirements equivalent to § 50.155 and will not be necessary once the MBDBE rule goes into effect. Therefore, the mitigation strategies for beyond-design-basis external events license conditions will be deemed removed from the Enrico Fermi Nuclear Plant, Unit 3, Virgil C. Summer Nuclear Station, Units 2 and 3, South Texas Project, Units 3 and 4, and Levy Nuclear Plant, Units 1 and 2 COLs on **[INSERT THE EFFECTIVE DATE OF THE FINAL RULE]**.

In addition to license conditions corresponding to the Mitigation Strategies Orders, the COLs for Enrico Fermi Nuclear Plant, Unit 3, South Texas Project, Units 3 and 4, and Levy Nuclear Plant, Units 1 and 2 included license conditions for the performance of staffing and communications assessments that correspond to the requests for information on those subjects in the NRC letter issued under § 50.54(f) on March 12, 2012. As discussed in the backfit assessment for § 50.155(b)(5) and (c)(4), the NRC used the information gathered in response to

this letter in assessing the need to impose those additional requirements on the licensees on a generic rather than site-specific basis. Consequently, there is no longer a need to collect this information for these licensees because there will be no additional regulatory action taken to modify, suspend, or revoke their licenses and the licensees are obligated to instead comply with the new requirements. Therefore, the license conditions calling for staffing and communications assessments for these licensees will be deemed removed on **[INSERT THE EFFECTIVE DATE OF THE FINAL RULE]**.

Because the final rule removes certain license conditions without actually amending the associated licenses, the NRC will issue by letter an administrative license amendment to each applicable licensee that will remove the relevant license condition(s) from that licensee's license and include revised license pages.

For each of these orders being ~~rescinded~~withdrawan and license conditions being removed, the NRC is replacing it with equivalent requirements in the MBDBE rule. Although the NRC did not include these measures in the MBDBE proposed rule, the NRC has good cause for not providing notice and an opportunity to comment on them. Under the Administrative Procedure Act (5 U.S.C. 553(b)), an agency may waive the normal notice and comment requirements if it finds, for good cause, that they are impracticable, unnecessary, or contrary to the public interest. As authorized by 5 U.S.C. 553(b)(3)(B), the NRC finds good cause to waive notice and opportunity for comment on the measures because the measures will not change the applicable licensees' substantive requirements or have an impact on public health and safety or the common defense and security. The NRC is simply replacing the method that it uses to impose the same requirements on the same set of licensees. Removing the license conditions and ~~rescinding~~withdrawing the orders is also a logical outgrowth of the proposed rule, in which the Commission explained that the agency would make generically applicable certain

requirements in the Mitigation Strategies and SFPI Orders and related license conditions. The Commission's decision to ~~rescind~~withdraw the orders and remove the license conditions now that they are unnecessary was reasonably foreseeable. ~~Similarly, Order EA-06-137 and its associated license condition have not been necessary since the 2009 Power Reactor Security Requirements final rule created § 50.54(hh).~~

Technology-Neutral Emergency Response Data System

The requirements of 10 CFR part 50, appendix E, section VI, for the ERDS are amended to reflect the use of up-to-date technologies and remain technology-neutral so that the equipment supplied by the NRC continues to be replaced as needed, without the need for future rulemaking as equipment becomes obsolete. In 2005, the NRC initiated a comprehensive, multi-year effort to modernize all aspects of the ERDS, including the hardware and software that constitute the ERDS infrastructure at NRC headquarters, as well as the technology used to transmit data from licensed power reactor facilities. As described in NRC Regulatory Issue Summary 2009-13, "Emergency Response Data System Upgrade from Modem to Virtual Private Network Appliance," the NRC engaged licensees in a program that replaced the existing modems used to transmit ERDS data with virtual private network devices. The licensees now have less burdensome testing requirements, faster data transmission rates, and increased system security.

submittal because § 50.82(a)(2) and § 52.110(b) set docketing as the point at which operation of the reactor is no longer authorized and fuel cannot be placed in the reactor vessel.

§ 50.155 Mitigation of Beyond-Design-Basis Events.

This final rule adds new § 50.155, "Mitigation of beyond-design-basis events," to 10 CFR part 50. The details of each paragraph within § 50.155 ~~is~~are explained in greater detail in the following paragraphs in this section.

Paragraph 50.155(a), "Applicability"

Paragraph 50.155(a) describes which entities are subject to the MBDBE rule. Paragraph 50.155(a)(1) provides that each holder of an operating license for a nuclear power reactor under 10 CFR part 50, as well as each holder of a COL under 10 CFR part 52 for which the Commission has made the finding under § 52.103(g) that the acceptance criteria ~~have been~~are met, is required to comply with the requirements of this rule until the time when the NRC has docketed the certifications described in § 50.82(a)(1) or § 52.110(a). These certifications inform the NRC that the licensee has permanently ceased to operate the reactor and permanently removed all fuel from the reactor vessel. Upon the docketing of the certifications, by operation of law under §§ 50.82(a)(2) or 52.110(b), the licensee's 10 CFR part 50 or 52 license, respectively, no longer authorizes operation of the reactor or emplacement or retention of fuel into the reactor vessel. At the time of NRC docketing of these certifications, control of the applicability of the requirements of § 50.155 for licensees transitions to § 50.155(a)(2).

Although neither an applicant for an operating license under 10 CFR part 50 nor a COL holder before the § 52.103(g) finding is ~~not~~ required to comply with § 50.155 until issuance of

Paragraph 50.155(b)(1) limits the requirements for mitigation strategies to addressing "external events from natural phenomena." This language is meant to differentiate these requirements from those that previously existed in § 50.54(hh)(2) that are now located in § 50.155(b)(3), and which address beyond-design-basis external events leading to loss of large areas of the plant due to explosions and fire.

The requirement to enable "the acquisition and use of offsite assistance and resources to support the functions required by § 50.155(b)(1)(i) of this section indefinitely, or until sufficient site functional capabilities can be maintained without the need for the mitigation strategies" means that licensees need to plan for obtaining sufficient resources (e.g., fuel for generators and pumps, cooling and makeup water) to continue removing decay heat from the irradiated fuel in the reactor vessel and SFP as well as to remove heat from containment as necessary until an alternate means of removing heat is established. The alternate means of removing heat could be achieved through repairs to existing SSCs, commissioning of new SSCs, or reduction of decay heat levels through the passage of time sufficient to allow heat removal through losses to the ambient environment. More detailed planning for offsite assistance and resources is necessary for the initial period following the event; less detailed planning is necessary as the event progresses and the licensee can mobilize additional support for recovery.

Paragraph 50.155(b)(2) requires licensees who received the March 12, 2012, NRC letter issued under § 50.54(f) to consider the effects of the reevaluated flooding and seismic hazards information developed in response to that request, if the magnitude of those hazards exceeds the external event design basis of the licensee's facility. In § 50.155(b)(2), the phrase, "developed in response," is intended to allow licensees the flexibility to rely on NRC-reviewed licensee adjustments to the hazard calculations originally submitted in response to the § 50.54(f) request. As discussed further below in this section, the reevaluated hazards are

conservative and bounding, and licensees are provided the flexibility in this final rule to remove conservatism for their facility to enable more cost-effective means for addressing the information. The words, "if the magnitude of those hazards," are intended to convey that it is the magnitude (e.g., flooding water level) that is being compared to determine which effects to use in developing strategies, guidelines, or approaches. The current external event design basis of the facility, for the purposes of § 50.155, is the information on external hazards that was developed during licensing under GDC 2 or the PDC using guidance and methods that were state-of-the-art at the time of licensing. Differences may exist between the external design basis for a facility and the reevaluated flooding and seismic hazard information due to changes in ~~the~~regulatory guidance and methods used for the determination of conservative values to determine the design basis for initial siting of a facility.

The words "reevaluated hazard information" are intended to convey that the reevaluated hazard information is not the design basis for currently operating licensees. The requirement in GDC 2 results in specific values or ranges of values for controlling parameters as reference bounds for the design in order to establish "design bases" as defined in § 50.2. The methods used in establishing these values are already intended to be conservative and include sufficient margin for the limited accuracy, quantity, and period of time in which historical data on the natural phenomena reported for the site and surrounding area has been accumulated. Addressing the reevaluated hazard information within the mitigation strategies results in an even greater capability for addressing external event uncertainty, consistent with the Commission's intent for these requirements, and implements the Commission's direction in SRM-COMSECY-14-0037.

Recognizing the nature of the reevaluated hazard information, the NRC, through § 50.155(b)(2), provides licensees with flexibility in the requirements for addressing the

strategies and guidance into a single section to promote efficiency in their consideration and allow for better integration. Although the wording of § 50.155(b)(3) differs from that of previous § 50.54(hh)(2), no substantive change in the requirements is intended.

The introductory text of § 50.155(b)(3) that is contained in § 50.155(b) is worded so that it requires that licensees "develop, implement, and maintain" the strategies and guidance required in § 50.155(b)(3) rather than using the wording of previous § 50.54(hh)(2) to require that licensees "develop and implement" the described guidance and strategies. The addition of the word "maintain" is to correct an inconsistency with the wording of § 50.54(hh)(1), which was issued along with § 50.54(hh)(2) in the Power Reactor Security Requirements final rule. The requirement as it was originally issued in OrderEA-02-026 was worded to require licensees to "develop" specific guidance, while the corresponding license conditions imposed by the conforming license amendment was worded to require each affected licensee to "develop and maintain" strategies. The NRC concludes that the phrase "develop, implement, and maintain" provides better clarity of what is necessary for compliance with the requirements without substantively changing the requirements.

Paragraph 50.155(b)(4) requires licensees to integrate the capabilities required by § 50.155(b) with EOPs. The Commission's intent regarding integration of strategies, guidelines, and procedures was ~~introduced~~discussed in the section-by-section analysis of the § 50.155(b) requirement for an integrated response capability and is described further under "Integration with EOPs" of section V.C of this notice.

Paragraph 50.155(b)(5) requires licensees to provide the staffing necessary for an integrated response capability to support use of the capabilities in § 50.155(b). The number and composition of the response staff should be sufficient to implement the capabilities required by § 50.155(b). This requirement is not intended to require current licensees, who have performed

staffing analyses to support implementation of the Mitigation Strategies Order or to support implementation of EDMGs, to redo these staffing analyses. Instead, the staffing requirement is expected to be verified through the use of drills, existing training analyses and other methods. The word "sufficient" is used in § 50.155(b)(5) to ~~reflect its~~ mean~~ing:~~ ~~"~~adequate.~~"~~

Paragraph 50.155(b)(6) requires licensees to have a supporting organizational structure with defined roles, responsibilities, and authorities for directing and performing the capabilities required by § 50.155(b). This requirement is separate from the requirement in 10 CFR part 50, appendix E, section IV.A and is intended to support regulatory clarity by providing a clear demarcation between the command and control requirement implemented under 10 CFR part 50, appendix E and those required for § 50.155. Accordingly, while a licensee may voluntarily choose to use existing 10 CFR part 50 appendix E plans and implementing procedures to implement this requirement, that approach is not required by § 50.155(b)(6).

Paragraph 50.155(c), "Equipment"

Paragraph 50.155(c)(1) requires that equipment relied on for the mitigation strategies, guidelines, and event-specific approaches of § 50.155(b)(1) and (b)(2) must have sufficient capacity and capability to perform the functions required by § 50.155(b)(1) and (b)(2).

The phrase "sufficient capacity and capability" in § 50.155(c)(1) means that the equipment, and the instrumentation relied on to support the decision making necessary to accomplish the associated mitigation strategies of § 50.155(b)(1) and (b)(2), has the design specifications necessary to assure that it functions and provides the requisite information on plant status when subjected to the conditions it is expected to be exposed to in the course of the execution of those mitigation strategies. These design specifications include appropriate consideration of environmental conditions that are predicted in the thermal-hydraulic and room

heat up analyses used in the development of the mitigation strategies ~~responsive to~~required by § 50.155(b)(1) and (b)(2).

Paragraphs 50.155(c)(2) and (c)(3) require reasonable protection of the equipment in § 50.155(b)(1) and (b)(2), respectively. Paragraph 50.155(c)(2) requires reasonable protection from the effects of natural phenomema that are equivalent in magnitude to the phenomena assumed for developing the external design basis of the facility. Paragraph 50.155(c)(3) requires reasonable protection from the effects of the reevaluated hazards determined in response to the March 12, 2012, NRC letter issued under § 50.54(f), but only applies to flooding and seismic reevaluated hazards, and only when those calculated hazards exceed the external events design basis of the facility. "Reasonable protection" is the means by which the NRC applies the appropriate level of treatment to equipment and SSCs that are required to function for § 50.155, without regard to whether the equipment is "FLEX equipment," as defined in NEI 12-06, or "plant equipment," as that term is used in NEI 12-06. Safety-related SSCs that function initially in response to beyond-design-basis external events have two sets of functions: safety-related functions and beyond-design-basis functions. The requirements placed on these SSCs to perform their safety-related functions for the design-basis events are extensive and are intended to result in an increased level of assurance that the SSCs will perform those safety-related functions, during and/or following the design-basis events as applicable.

For these dual-function SSCs, the regulatory requirements and resulting level of regulatory assurance for the beyond-design-basis functions addressed by § 50.155(b)(1) and (b)(2) for these dual-function SSCs are intended to be less stringent than the requirements associated with their safety-related functions. The "reasonable protection" requirement is the means for applying a reduced level of treatment for the beyond-design-basis functions and establishes an appropriate level of assurance. The phrase "reasonable protection" was initially

scenario(s). The NEI 12-06 guidelines further provide that multiple sets of equipment may be stored in diverse locations in order to provide assurance that sufficient equipment ~~would remain deployable~~could be deployed to assure the success of the strategies following an initiating event. The NRC-endorsed guidelines in NEI 12-06 do not consider concurrent, unrelated beyond-design-basis external events to be within the scope of the initiating events for the mitigation strategies. There is an assumption of a beyond-design-basis external event that establishes the event conditions for reasonable protection, and then it is assumed in NEI 12-06 that the event leads to an ELAP and LUHS. There is not, for example, an assumption of multiple beyond-design-basis external events occurring at the same time. As a result, reasonable protection for the purposes of compliance with § 50.155(c)(2) and (c)(3) allows the provision of specific sets of equipment for specific hazards with the required protection for those sets of equipment being against the hazard for which the equipment is intended to be used.

The NRC use of the phrase "reasonable protection" in § 50.155(c)(2) and (c)(3) is intended to distinguish this approach from the approach of GDC 2 or the PDCs, as applicable, which requires that SSCs important to safety be designed to withstand the effects of natural phenomena. Paragraphs 50.155(c)(2) and (c)(3) allow damage to, or loss of, specific pieces of equipment so long as the capability to use sufficient sets of the remaining equipment to accomplish strategies and guidelines is retained. "Reasonable protection" also allows for protection of the equipment using structures that could deform as a result of natural phenomena, so long as the equipment could be deployed from the structure to its place of use.

The remaining portion of § 50.155(c)(2) and (c)(3) sets the hazard level for which "reasonable protection" of the equipment must be provided. The hazard level is the level determined for the design basis for the facility for protection of safety-related SSCs from the effects of natural phenomena under § 50.155(c)(2). Paragraph 50.155(c)(3) sets the necessary

apply the strategies to real events. Such a change would not constitute demonstrated compliance with § 50.155. ~~For example, t~~The mitigation strategies use multiple sets of equipment, use strategies and guidelines rather than step-by-step procedures, have contingencies for conditions more severe than the assumed damage state used to develop the capability, employ alternate connection points, and are supported with offsite resources to provide for an indefinite capability. All of these are important elements of the additional mitigation capability for beyond-design-basis external events required by § 50.155. Changes that result in a significant reduction of these attributes would result in the mitigation strategies being less flexible and adaptable, and therefore being less likely to be successfully deployable following a beyond-design-basis external event. Such changes would not constitute demonstrated compliance. For example, permanent removal of a set of equipment clearly removes flexibility and lessens the potential for successful mitigation of a beyond-design-basis external event.

Paragraph 50.155(g)(2) requires that changes in the implementation of the requirements of § 50.155 subject to other change control requirements be processed via their respective change control processes, unless the changes being evaluated impact only the implementation of § 50.155. Changes to the implementation of § 50.155 can impact multiple aspects of the facility. Paragraph 50.155(g)(2) is intended to clearly identify that other change control requirements such as those in §§ 50.59, 50.54(p), 50.54(q), 73.58, and fire protection change controls may apply depending on the extent of the change and the aspects of the facility that are impacted. ~~This requirement is not essential because it is the licensee's obligation to comply with all applicable regulations; however, given the complexity of facility changes, the NRC is maintaining this requirement to provide regulatory clarity in the final rule, consistent with public comment.~~ For example, a change to an SSC having both a beyond-design-basis function for

Licensees requesting to use § 50.155(h)(2) may show good cause by supporting their request with the reasons why compliance with the § 50.155(b)(2) requirement could not be achieved and a basis for the revised compliance schedule. In addition to the extended compliance period, a licensee submittal under § 50.155(h)(2) should address portions of the MBDBE rule for which the licensee is already in compliance. For example, all existing power reactor licensees were required, under § 50.54(hh)(2), prior to the effective date of the MBDBE rule, to have the strategies and guidelines now required under § 50.155(b)(3). Continued compliance with this requirement provides the justification for removal of the Mitigation Strategies License Conditions. The NRC does not intend to allow a gap in compliance with this requirement through the use of the flexible scheduling of § 50.155(h)(2). Similarly, the NRC does not intend to allow a gap in compliance with the requirements of the Mitigation Strategies Order and those of § 50.155(b)(1). As a result, a licensee proposing a revised compliance schedule under this provision would need to document in their submittal that they will achieve compliance with § 50.155(b)(1) prior to the ~~rescission~~withdrawal date for the Mitigation Strategies Order to demonstrate good cause for the revised compliance schedule.

Paragraph 50.155(i), "~~Rescission~~Withdrawal of orders and removal of license conditions"

Under § 50.155(i)(1), the Mitigation Strategies and SFPI Orders will be ~~rescinded~~withdrawn on **[INSERT DATE 3 YEARS AFTER THE EFFECTIVE DATE OF THE FINAL RULE]**.

~~Under § 50.155(i)(2), Order EA-06-137 will be rescinded~~withdrawn ~~on **[INSERT THE EFFECTIVE DATE OF THE FINAL RULE].**~~

~~Under § 50.155(i)(3), on **[INSERT THE EFFECTIVE DATE OF THE FINAL RULE],** the Mitigation Strategy License Condition is deemed removed from the power reactor license of each licensee subject to § 50.155.~~

~~Under § 50.155(i)(4), on [**INSERT THE EFFECTIVE DATE OF THE FINAL RULE**], the license condition associated with Order EA-06-137 is deemed removed from the power reactor license of each applicable licensee subject to this section.~~

Under § 50.155(i)(~~5~~2), the reliable SFP/buffer pool level instrumentation, mitigation strategies for beyond-design-basis external events, and emergency planning license conditions, except for license condition 2.D(12)(g)1, will be deemed removed from the Enrico Fermi Nuclear Plant, Unit 3 license on **[INSERT DATE 2 YEARS AFTER THE EFFECTIVE DATE OF THE FINAL RULE]**.

Under § 50.155(i)(~~6~~3), the mitigation strategies for beyond-design-basis external events license condition will be deemed removed from the Virgil C. Summer Nuclear Station, Units 2 and 3 licenses on **[INSERT DATE 2 YEARS AFTER THE EFFECTIVE DATE OF THE FINAL RULE]**.

Under § 50.155(i)(~~4~~7), the mitigation strategies for beyond-design-basis external events and emergency planning license conditions will be deemed removed, with the exception of license conditions 2.D(14)(g)1 and 2.D(14)(g)6-8, from the South Texas Project, Units 3 and 4 licenses on **[INSERT DATE 2 YEARS AFTER THE EFFECTIVE DATE OF THE FINAL RULE]**.

Under § 50.155(i)(~~5~~8), the mitigation strategies for beyond-design-basis external events, reliable SFP instrumentation, and emergency planning license conditions will be deemed removed with the exception of license condition 2.D(12)(j)1 from the Levy Nuclear Plant, Units 1 and 2 licenses on **[INSERT DATE 2 YEARS AFTER THE EFFECTIVE DATE OF THE FINAL RULE]**.

to the NRC for complying with this final rule. The RGs apply to all current holders of, and applicants for operating licenses under 10 CFR part 50 and COLs under 10 CFR part 52.

Issuance of the RGs does not constitute backfitting under § 50.109 and ~~does~~would not otherwise ~~violate~~be inconsistent with issue finality under 10 CFR part 52. As discussed in the "Implementation" section of each RG, the NRC has no current intention to impose the RGs on current holders of an operating license or COL.

Applying the RGs to applications for operating licenses or COLs does not constitute backfitting as defined in § 50.109 and ~~does~~would not otherwise ~~violate~~be inconsistent with issue finality under 10 CFR part 52, because such applicants are not within the scope of entities protected by § 50.109 or the applicable issue finality provisions in 10 CFR part 52. Neither § 50.109 nor the issue finality provisions under 10 CFR part 52 – with certain exceptions – were intended to apply to every NRC action that substantially changes the expectations of current and future applicants.

This information will be used by the NRC to support oversight activities associated with these requirements, to determine whether requests for use of the flexible scheduling provision have provided good cause for using that provisions, and for making regulatory determinations regarding the seismic and flooding reevaluated hazard information. Responses to this collection of information are mandatory for items 1 and 3 listed above, and voluntary for item 2 listed above.

You may submit comments on any aspect of the information collection(s), including suggestions for reducing the burden, by the following methods:

- **Federal rulemaking Web Site:** Go to http://www.regulations.gov and search for Docket ID <NRC-2014-0240>.
- **Mail comments to:** FOIA, Privacy, and Information Collections Branch, Office of Information Services, Mail Stop: T-5 F53, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001 or to Vlad Dorjets, Desk Officer, Office of Information and Regulatory Affairs (3150-AJ49), NEOB-10202, Office of Management and Budget, Washington, DC 20503; telephone: 202-395-7315, e-mail: oira_submission@omb.eop.gov.

Public Protection Notification

The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless the document requesting or requiring the collection displays a currently valid OMB control number.

XV. Congressional Review Act

This final rule is a rule as defined in the Congressional Review Act (5 U.S.C. 801-808).

Document	ADAMS ACCESSION NO. / WEB LINK / FEDERAL REGISTER CITATION
ACRS Transcript—Full Committee, "Discuss Consolidation of Station Blackout Mitigation Strategies and Onsite Emergency Response Capabilities Rulemakings," July 10, 2014	ML14223A631
ACRS Transcript—Full Committee, "Discuss Preliminary Mitigation of Beyond-Design-Basis Events Rulemaking Language," December 4, 2014	ML14345A387
ACRS Transcript—Full Committee, "Discuss the Station Blackout Mitigation Strategies Regulatory Basis," June 5, 2013	ML13175A344
ACRS Transcript—Joint Fukushima and Probabilistic Risk Assessment Subcommittees, "Discuss CPRR Technical Analysis," August 22, 2014	ML14265A059
ACRS Transcript—Plant Operations and Fire Protection Subcommittee, "Discuss the Onsite Emergency Response Capabilities Regulatory Basis," February 6, 2013	ML13063A403
ACRS Transcript—Regulatory Policies and Practices Subcommittee, "Discuss the Station Blackout Mitigation Strategies Regulatory Basis," December 5, 2013, and April 23, 2013	ML13148A404
ACRS Transcript—Reliability and Probabilistic Risk Assessment Subcommittee, "Discuss CPRR Technical Analysis," November 19, 2014	ML14337A651
American National Standards Institute/American Nuclear Society 3.2-2012, "Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants"	http://www.ans.org/store/
American Society for Civil Engineers Standard 7-10, "Minimum Design Loads for Buildings and Other Structures," 2013	http://www.ascelibrary.org/
~~"Browns Ferry Nuclear Plant, Units 1, 2, and 3 – Conforming License Amendments To Incorporate the Mitigation Strategies Required by Section B.5.b. of Commission Order EA-02-026 and the Radiological Protection Mitigation Strategies Required by Commission Order EA-06-137," August 16, 2007~~	~~ML072270181~~
~~"Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2 – Conforming License Amendments To Incorporate the Mitigation Strategies Required by Section B.5.b. of Commission Order EA-02-026," July 11, 2007~~	~~ML071920056~~
CLI-12-09, "Memorandum and Order," in the matter of South Carolina Electric & Gas Co. and South Carolina Public Service Authority (also Referred to as Santee Cooper) (Virgil C. Summer Nuclear Station, Units 2 and 3), March 30, 2012	ML12090A531
COMGBJ-11-0002, "NRC Actions Following the Events in Japan," March 21, 2011	ML110800456

Document	ADAMS ACCESSION NO. / WEB LINK / FEDERAL REGISTER CITATION
"Fort Calhoun Station, Unit 1 – Relaxation of the Schedule Requirements for Order EA-12-049 'Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events' (CAC No. MF0969)," November 21, 2016	ML16277A509
Inspection Manual Chapter (IMC) 0308, "Reactor Oversight Process Basis Document," Attachment 2, "Technical Basis for Inspection Program," October 16, 2006	ML062890421
Interim Staff Guidance, NSIR/DPR-ISG-01, "Emergency Planning for Nuclear Power Plants," November 2011	ML113010523
JLD-ISG-2012-01, "Compliance with Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," Revision 0, August 29, 2012	ML12229A166
JLD-ISG-2012-01, "Compliance with Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," Revision 1, January 22, 2016	ML15357A163
JLD-ISG-2012-01, "Compliance with Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," Draft Revision 2, November 4, 2016	ML16277A617
JLD-ISG-2012-03, "Compliance with Order EA-12-051, Reliable Spent Fuel Pool Instrumentation," Revision 0, August 29, 2012	ML12221A339
"Kewaunee Power Station 60-Day Response to March 12, 2012, Information Request Regarding Recommendation 2.1, Seismic Reevaluations," April 29, 2013	ML13123A004
"Kewaunee Power Station – Rescission of Order EA-12-049, 'Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond Design Basis External Events' (TAC No. MF2774)" June 10, 2014	ML14059A411
"Kewaunee Power Station – Response to Request for Relief from Responding Further to the March 2012 Request for Information Letter for Recommendation 9.3," January 22, 2014	ML13322B255
Letter from Anne T. Boland, NRC, to J.W. Shea, TVA, "Watts Bar Nuclear Plant, Unit 2 - Request for Tennessee Valley Authority's Consent to Imposition of New Requirement Related to Mitigation of Beyond-Design-Basis Events," February 15, 2017	ML17040A353
Letter from Anthony R. Pietrangelo, NEI, to Mark A. Satorius, NRC, "Use of Qualitative Factors in Regulatory Decision Making," May 11, 2015	ML15217A314

Letter from Eric J. Leeds to Holders of Licenses for Operating Power Reactors as Listed in the Enclosure, "Rescission or Partial Rescission of Certain Power Reactor Security Orders Applicable to Nuclear Power Plants," November 28, 2011	ML111220447
Letter from J. E. Dyer, NRC, to Holders of Licenses for Operating Power Reactors Listed in the Enclosure, "Order Requiring Compliance with Key Radiological Protection Mitigation Strategies," August 28, 2006	ML062300304
Letter from John W. Stetkar, ACRS Chairman, to Chairman Stephen G. Burns, NRC, "Draft SECY Paper Proposed Rulemaking: Mitigation of Beyond-Design-Basis Events (RIN 3150-AJ49)," April 22, 2015	ML15111A271
Letter from J. Sam Armijo, ACRS Chairman, to Mr. R. W. Borchardt, "Response to February 27, 2012 Letter Regarding Final Disposition of Fukushima-Related ACRS Recommendations in Letters Dated October 13, 2011, and November 8, 2011," March 13, 2012	ML12072A197
Letter from J.W.Shea, TVA, to NRC Document Control Desk, "Watts Bar Nuclear Plant, Unit 2 - Response to NRC Request for TVA's Consent to Imposition of New Requirement Related to Mitigation of Beyond-Design-Basis Events," March 1, 2017	ML17061A121
Letter from Mark A. Satorius to John W. Stetkar, ACRS, "Draft SECY Paper Proposed Rulemaking: Mitigation of Beyond-Design-Basis Events (RIN 3150-AJ49)," May 15, 2015	ML15125A485
Letter from Said Abdel-Khalik, ACRS Chairman, to Chairman Gregory B. Jaczko, NRC, "Initial ACRS Review of: (1) the NRC Near-Term Task Force Report on Fukushima and (2) Staff's Recommended Actions To Be Taken Without Delay," October 13, 2011	ML11284A136
Memorandum from R. W. Borchardt to J. Sam Armijo, ACRS Chairman, "Final Disposition of the Advisory Committee on Reactor Safeguards' Review of (1) the U.S. Nuclear Regulatory Commission Near-Term Task Force Report on Fukushima, (2) Staff's Recommended Actions To Be Taken Without Delay (SECY-11-0124), and (3) Staff's Prioritization of Recommended Actions To Be Taken in Response to Fukushima Lessons-Learned," February 27, 2012	ML12030A198
NEI 06-12, "B.5.b Phase 2&3 Submittal Guideline," Revision 2, December 2006	ML070090060
NEI 10-05, "Assessment of On-Shift Emergency Response Organization Staffing and Capabilities," Revision 0, June 2011	ML111751698
NEI 12-01, "Guideline for Assessing Beyond Design Basis Accident Response Staffing and Communications Capabilities," Revision 0, May 2012	ML12125A412
NEI 12-02, "Industry Guidance for Compliance with NRC Order EA-12-051, 'To Modify License with Regard to Reliable Spent Fuel Pool Instrumentation'," Revision 1, August 2012	ML122400399

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San Onofre Nuclear Generating Station Units 2 and 3, "Final Response to the March 12, 2012 Information Request Regarding Near-Term Task Force Recommendations 2.1, 2.3, and 9.3 and Corresponding Commitments San Onofre Nuclear Generating Station (SONGS) Units 2 and 3," September 30, 2013	ML13276A020
"San Onofre Nuclear Generating Station, Units 2 and 3, NRC Response to Southern California Edison's Final Response to the March 2012 Request for Information Letter," January 22, 2014	ML13329A826
"San Onofre Nuclear Generating Station, Units 2 and 3, Rescission of Order EA-12-049, 'Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond Design Basis External Events' (TAC Nos. MF2657 and MF2658)," June 30, 2014	ML14113A572
"San Onofre Nuclear Generating Station, Units 2 and 3 - Rescission of Order EA-12-051, 'Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation' (TAC Nos. MF0917 and MF0918)," June 30, 2014	ML14111A069
SECY-11-0093, "Near-Term Report and Recommendations for Agency Actions Following the Events in Japan," July 12, 2011	ML11186A950
SECY-11-0124, "Recommended Actions To Be Taken Without Delay from the Near-Term Task Force Report," September 9, 2011	ML11245A127
SECY-11-0137, "Prioritization of Recommended Actions To Be Taken in Response to Fukushima Lessons Learned," October 3, 2011	ML11272A111
SECY-12-0025, "Proposed Orders and Requests for Information in Response to Lessons Learned from Japan's March 11, 2011, Great Tōhoku Earthquake and Tsunami," February 17, 2012	ML12039A103
SECY-13-0132, "Plan for Updating the U.S. Nuclear Regulatory Commission's Cost Benefit Guidance," January 2, 2014	ML13274A495
SECY-14-0046, "Fifth 6-Month Status Update on Response to Lessons Learned from Japan's March 11, 2011, Great Tōhoku Earthquake and Subsequent Tsunami," April 17, 2014	ML14064A523
SECY-15-0050, "Cumulative Effects of Regulation Process Enhancements and Risk Prioritization Initiative," April 1, 2015	ML15034A360
SECY-15-0065, "Proposed Rulemaking: Mitigation of Beyond-Design-Basis Events (RIN 3150-AJ49)," April 30, 2015	ML15049A201
SECY-15-0085, "Evaluation of the Containment Protection & Release Reduction for Mark I and Mark II Boiling Water Reactors Rulemaking Activities (10 CFR Part 50) (RIN-3150-AJ26)," enclosure entitled, "Containment Protection and Release Reduction (CPRR) Rulemaking: Draft Regulatory Basis," June 18, 2015	ML15005A079
SECY-16-0142, "Draft Final Rule—Mitigation of Beyond-Design-Basis Events (RIN 3150-AJ49)," December 15, 2016	ML16301A005
SECY-89-012, "Staff Plans for Accident Management Regulatory and Research Programs," January 18, 1989	ML12251A414
SECY-97-132, "Status of the Integration Plan for Closure of Severe Accident Issues and the Status of Severe Accident Research," June 23, 1997	ML992930144

SECY-98-131, "Status of the Integration Plan for Closure of Severe Accident Issues and the Status of Severe Accident Research," June 8, 1998	ML992880008
SRM-COMSECY-13-0002, "Consolidation of Japan Lessons Learned Near-Term Task Force Recommendations 4 and 7 Regulatory Activities," March 4, 2013	ML13063A548
SRM-COMSECY-14-0037, "Integration of Mitigating Strategies for Beyond-Design-Basis External Events and The Reevaluation of Flooding Hazards," March 30, 2015	ML15089A236
SRM-SECY-11-0093, "Near-Term Report and Recommendations for Agency Actions Following the Events in Japan," August 19, 2011	ML112310021
SRM-SECY-11-0124, "Recommended Actions To Be Taken Without Delay From the Near-Term Task Force Report," October 18, 2011	ML112911571
SRM-SECY-11-0137, "Prioritization of Recommended Actions To Be Taken in Response to Fukushima Lessons Learned," December 15, 2011	ML113490055
SRM-SECY-13-0132, "U.S. Nuclear Regulatory Commission Staff Recommendation for the Disposition of Recommendation 1 of the Near-Term Task Force Report," May 19, 2014	ML14139A104
SRM-SECY-15-0065, "Proposed Rulemaking: Mitigation of Beyond-Design-Basis Events (RIN 3150-AJ49)," August 27, 2015	ML15239A767
SRM-SECY-16-0142, "Draft Final Rule—Mitigation of Beyond-Design-Basis Events (RIN 3150-AJ49)," December 15, 2016	*Add ML number*
Temporary Instruction 2515/191, "Inspection of the Licensee's Responses to Mitigation Strategies Order EA-12-049, Spent Fuel Pool Instrumentation Order EA-12-051 and Emergency Preparedness Information Requested in NRC March 12, 2012," March 12, 2012	ML14273A444
"Vermont Yankee Nuclear Power Station – Rescission of Order EA-12-049, 'Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond Design Basis External Events' (TAC No. MF4763)," March 2, 2015	ML14321A685
"Vermont Yankee Nuclear Power Station – Rescission of Order EA-12-051, 'Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation' (TAC No. MF4764)," March 2, 2015	ML14321A696

The NRC may post documents related to this rulemaking, including public comments, on the Federal rulemaking Web site at http://www.regulations.gov under Docket ID NRC-2014-0240. The Federal rulemaking Web site allows you to receive alerts when changes or additions occur in a docket folder. To subscribe: 1) navigate to the docket folder

(NRC-2014-0240); 2) click the “Sign up for E-mail Alerts” link; and 3) enter your e-mail address and select how frequently you would like to receive e-mails (daily, weekly, or monthly).

List of Subjects

10 CFR Part 50

Administrative practice and procedure, Antitrust, Backfitting, Classified information, Criminal penalties, Education, Fire prevention, Fire protection, Incorporation by reference, Intergovernmental relations, Nuclear power plants and reactors, Penalties, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements, Whistleblowing.

10 CFR Part 52

Administrative practice and procedure, Antitrust, Backfitting, Combined license, Early site permit, Emergency planning, Fees, Finality, Incorporation by reference, Inspection, Limited work authorization, Nuclear power plants and reactors, Penalties, Probabilistic risk assessment, Prototype, Reactor siting criteria, Redress of site, Reporting and recordkeeping requirements, Standard design, Standard design certification.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended; the Energy Reorganization Act of 1974, as amended; and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR parts 50 and 52:

PART 50 - DOMESTIC LICENSING OF PRODUCTION AND UTILIZATION FACILITIES

1. The authority citation for 10 CFR part 50 continues to read as follows:

(2) The equipment upon which the strategies and guidelines required by § 50.155(b)(1) rely, including the planned locations of the equipment and how the equipment meets the requirements of § 50.155(c).

4. In § 50.54 remove paragraph (hh)(2), redesignate paragraph (hh)(3) as (hh)(2) and revise it to read as follows:

§ 50.54 Conditions of licenses.

* * * * *

(hh) * * *

(2) Paragraph 50.54(hh)(1) does not apply to a licensee that has submitted the certifications required under § 50.82(a)(1) or § 52.110(a) of this chapter once the NRC has docketed those certifications.

* * * * *

5. Add new § 50.155 to read as follows:

§ 50.155 Mitigation of ~~B~~b~~B~~eyond-~~D~~d~~D~~esign-~~B~~b~~B~~asis ~~E~~e~~E~~vents.

(a) *Applicability*.

(1) Each holder of an operating license for a nuclear power reactor under this part and each holder of a combined license under part 52 of this chapter for which the Commission has made the finding under § 52.103(g) shall comply with the requirements of this section until the

implementing each such change, the licensee demonstrates that the provisions of this section continue to be met and maintains documentation of changes until the requirements of this section no longer apply.

(2) Changes in the implementation of requirements in this section subject to ~~other~~ change control processes ~~than~~in addition to paragraph (g) of this section must be processed via their respective change control processes, unless the changes being evaluated impact only the implementation of the requirements of this section.

(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 § 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 3 YEARS AFTER EFFECTIVE DATE OF THE FINAL RULE**] for licensees that received NRC Order EA-13-109 or [**INSERT DATE 2 YEARS AFTER EFFECTIVE DATE OF THE FINAL RULE**] for all other applicable licensees.

(2) For licensees that cannot achieve compliance with paragraph (b)(2) of this section to address a reevaluated hazard within the schedule of paragraph (h)(1) of this section, the NRC will consider an alternative compliance date if the licensee submits to the Director, Office of Nuclear Reactor Regulation, under § 50.4 of this part, no later than [**INSERT DATE 90 DAYS AFTER THE EFFECTIVE DATE OF THE FINAL RULE**], a request to revise the compliance date with good cause for not achieving compliance within the schedule of paragraph (h)(1) of this section. Unless the licensee is notified to the contrary, the submitted request to revise the

compliance date will be regarded as approved by the Commission 120 days after submission to the Commission.

(i) ~~*Rescission*~~*Withdrawal of orders and removal of license conditions.*

(1) On **[INSERT DATE 3 YEARS AFTER EFFECTIVE DATE OF THE FINAL RULE]**, Order EA-12-049, "Order Modifying Licenses With Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," Order EA-12-051, "Order Modifying Licenses With Regard to Reliable Spent Fuel Pool Instrumentation," and Order EA-12-063, "Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation," are ~~rescinded~~withdrawn for each licensee or construction permit holder that was issued those Orders.

~~(2) On **[INSERT THE EFFECTIVE DATE OF THE FINAL RULE]**, Order EA-06-137, "Order Modifying Licenses," is rescinded~~withdrawn ~~for each licensee that was issued Order EA-06-137.~~

~~(3) On **[INSERT THE EFFECTIVE DATE OF THE FINAL RULE]**, the Mitigation Strategies License Condition is deemed removed from the power reactor license of each licensee subject to this section.~~

~~(4) On [**INSERT THE EFFECTIVE DATE OF THE FINAL RULE**], the license condition associated with Order EA-06-137 is deemed removed from the power reactor license of each applicable licensee subject to this section.~~

(~~5~~2) On **[INSERT DATE 2 YEARS AFTER THE EFFECTIVE DATE OF THE FINAL RULE]**, Enrico Fermi Nuclear Plant Unit 3, License No. NPF–95, license conditions 2.D(12)(h), "Reliable Spent Fuel Pool/Buffer Pool Level Instrumentation," 2.D(12)(i), "Emergency Planning Actions," and 2.D(12)(g), "Mitigation Strategies for Beyond-Design-Basis External Events," except for 2.D(12)(g)1, are deemed removed from that license.

(~~63~~) On **[INSERT DATE 2 YEARS AFTER THE EFFECTIVE DATE OF THE FINAL RULE]**, Virgil C. Summer Nuclear Station Unit 2, License No. NPF–93, license condition 2.D(13), "Mitigation Strategies for Beyond-Design-Basis External Events," and Virgil C. Summer Nuclear Station Unit 3, License No. NPF–94, license condition 2.D(13), "Mitigation Strategies for Beyond-Design-Basis External Events," are deemed removed from those licenses.

(~~74~~) On **[INSERT DATE 2 YEARS AFTER THE EFFECTIVE DATE OF THE FINAL RULE]**, South Texas Project, Unit 3, License No. NPF–97, license conditions 2.D(14)(g), "Beyond Design Basis External Events," and 2.D(14)(j), "Emergency Planning Actions," and South Texas Project, Unit 4, License No. NPF–98, license conditions 2.D(14)(g), "Beyond Design Basis External Events," and 2.D(14)(j), "Emergency Planning Actions," except for license conditions 2.D(14)(g)1, 2.D(14)(g)6-8, are deemed removed from those licenses.

(~~85~~) On **[INSERT DATE 2 YEARS AFTER THE EFFECTIVE DATE OF THE FINAL RULE]**, Levy Nuclear Plant, Unit 1, License No. NPF-99, license conditions 2.D(12)(d)11 regarding reliable spent fuel pool instrumentation, 2.D(12)(f), "Emergency Planning Actions," and 2.D(12)(j), "Mitigation Strategies for Beyond-Design-Basis External Events," except for 2.D(12)(j)1, and Levy Nuclear Plant, Unit 2, License No. NPF-100, license conditions 2.D(12)(d)11 regarding reliable spent fuel pool instrumentation, 2.D(12)(f), "Emergency Planning Actions," and 2.D(12)(j), "Mitigation Strategies for Beyond-Design-Basis External Events," except for 2.D(12)(j)1, are deemed removed from those licenses.

6. In appendix E to part 50 revise paragraphs IV.F.2.j and VI.3.c to read as follows:

Appendix E to Part 50—Emergency Planning and Preparedness for Production and Utilization Facilities

February 22, 2017

SGB Edits

To address the issues discussed in item 1 of this memorandum, the paragraph beginning on page 107 and extending onto page 108 of the draft *Federal Register* notice (Enclosure 1 to SECY-16-0142) should be replaced with the following paragraph. Revised text is underlined; deleted text is not included.

For each of these orders being ~~rescinded~~withdrawn and license conditions being removed, the NRC is replacing it with equivalent requirements in the MBDBE rule. Although the NRC did not include these measures in the MBDBE proposed rule, the NRC provided sufficient notice and an opportunity to comment under the Administrative Procedure Act (5 U.S.C. 553(b)) when it issued the MBDBE proposed rule. In the proposed rule, the Commission explained that the NRC would make generically applicable certain requirements in the Mitigation Strategies and SFPI Orders and related license conditions. The Commission's decision to remove these license conditions now that they are unnecessary was reasonably foreseeable, just as it was foreseeable that the Commission would ~~rescind~~withdraw the Orders. ~~Similarly, Order EA-06-137 and its associated license condition have been unnecessary since the 2009 Power Reactor Security Requirements final rule created § 50.54(hh).~~ Additionally, the Commission was informed by comments from the public that warned of potential unintended consequences from having duplicate requirements in orders, license conditions, and regulations. Thus, this aspect of the final rule, like the rest of the final rule, is a logical outgrowth of the proposed rule. Under the logical outgrowth line of legal decisions (e.g., *Long Island Care at Home, Ltd. v. Coke*, 551 U.S. 158 (2007); *National Mining Ass'n v. Mine Safety and Health Administration*, 512 F.3d 696 (D.C. Cir. 2008)), the public had adequate notice and opportunity to comment on the rescission of orders and removal of license conditions.

To address the issues discussed in item 2 of this memorandum, the first full paragraph on page 80 of the draft *Federal Register* notice (Enclosure 1 to SECY-16-0142) should be replaced with the following paragraph. Revised text is underlined; deleted text is not included.

Applicability of the requirements of § 50.155(b)(3) was formerly governed by § 50.54(hh)(3), which made these requirements inapplicable following the submittal of the certifications required under § 50.82(a) or § 52.110(a)(1). As discussed in the Power Reactor Security Requirements final rule, the NRC concludes that it is inappropriate for the requirements for EDMGs to apply to a permanently shutdown, defueled reactor, where the fuel was removed from the site or moved to an ISFSI. The NRC is requiring EDMGs for a licensee with permanently shutdown defueled reactors, but with irradiated fuel still in its SFP, because the licensee must be able to implement effective mitigation measures for large fires and explosions that could impact the SFP while it contains irradiated fuel. The MBDBE rule corrects ~~the wording of~~ former § 50.54(hh)(3) to implement the sunsetting of the associated requirement as intended by the Commission in 2009. This change does not constitute backfitting for currently operating reactors (except Watts Bar Nuclear Plant, Unit 2), current COL holders, and currently decommissioning reactors with spent irradiated fuel in their SFP (except Millstone Power Station, Unit 1, as it is not subject to 10 CFR 50.155) because the EDMGs are also required by the licensees' license conditions. Watts Bar Nuclear Plant, Unit 2, does not have the license condition, but TVA has consented to the imposition of this requirement without the NRC conducting a backfit analysis for this imposition on Watts Bar Nuclear Plant, Unit 2. The NRC request for TVA's consent and TVA's response letter are referenced in section XIX, "Availability of Documents," of this notice. The MBDBE rule replaces the license conditions on the effective date of the MBDBE rule, thereby maintaining the EDMG requirement for these licensees.

To address the issues discussed in item 3 of this memorandum, several changes to the draft *Federal Register* notice (Enclosure 1 to SECY-16-0142) are needed. Revised text is underlined; deleted text is not included.

The paragraph beginning on page 61 and extending onto page 62 should be replaced with the following (with Note 3 as a footnote on page 62):

Once a licensee's § 50.82(a)(1) or § 52.110(a) certifications of permanent cessation of operations and permanent removal of fuel from the reactor vessel have been submitted, that licensee need only comply with the requirements of § 50.155(b) through (e), and (g) associated with maintaining or restoring SFP cooling. As discussed previously, these proposed requirements are based on the Mitigation Strategies Order. The licensees for the Kewaunee Power Station, Crystal River Unit 3 Nuclear Generating Plant, San Onofre Nuclear Generating Station, Units 2 and 3, and Vermont Yankee Nuclear Power Station submitted § 50.82(a)(1) certifications after issuance of the Mitigation Strategies Order. The NRC has ~~rescinded~~withdrawn the Mitigation Strategies Order for this group of NPP licensees (Shutdown NPP Group).[3] These ~~rescissions~~ withdrawals were based on the NRC's conclusion that the lack of fuel in the licensee's reactor core and the absence of challenges to the containment rendered unnecessary the development of guidance and strategies to maintain or restore core cooling and containment capabilities. Consistent with these ~~rescissions~~withdrawals, the MBDBE rule relieves licensees in decommissioning from the requirement to comply with the § 50.155(b) requirements to have mitigation strategies and guidelines to maintain or restore core cooling and containment capabilities. Moreover, these licensees do not need to comply with any of the other requirements in this final rule that support compliance with the § 50.155(b) requirements to have mitigation strategies and guidelines for maintaining or restoring core cooling and containment capabilities.

Note 3: The Mitigation Strategies Order for Fort Calhoun Station, Unit 1, which has permanently ceased operations and defueled, has not yet been ~~rescinded~~withdrawn, but the deadline for full compliance has been relaxed to August 31, 2017.

The paragraph beginning on page 110 and extending onto page 111 should be replaced with the following:

This rulemaking designates § 50.54(hh)(3) as § 50.54(hh)(2) to reflect the movement of the requirements formerly in § 50.54(hh)(2) to § 50.155(b)(3). Section 50.54(hh)(2) is revised to reflect that § 50.54(hh)(1)~~'s applicability is~~ applies to the licensee rather than the facility, to clarify that § 50.54(hh)(2) applies to only § 50.54(hh)(1), and to correct the section numbers for the required certifications. To avoid an unnecessary backfit in § 50.54(hh)(2), in the final rule the NRC removes the words "once the NRC has docketed those certifications" from the proposed § 50.54(hh)(2).

The last full paragraph on page 111 should be replaced with the following:

Paragraph 50.155(a) describes which entities are subject to the MBDBE rule. Paragraph 50.155(a)(1) provides that each holder of an operating license for a nuclear power reactor under 10 CFR part 50, as well as each holder of a COL under 10 CFR part 52 for which the Commission has made the finding under § 52.103(g) that the acceptance criteria have been met, is required to comply with the requirements of this rule until the time when the licensee submits the certifications described in § 50.82(a)(1) or § 52.110(a). These certifications inform the NRC that the licensee has permanently ceased to operate the reactor and permanently removed all fuel from the reactor vessel. The permanent removal of fuel from the reactor vessel removes the possibility of core damage and containment failure, making it appropriate to terminate the requirements for strategies and guidelines to maintain or restore core cooling and containment capabilities. At the time the licensee submits these certifications, control of the applicability of the requirements of § 50.155 for licensees transitions to § 50.155(a)(2).

The first full paragraph on page 140 should be replaced with the following:

As required by §§ 50.109 and 52.98, the Commission has completed a backfitting and issue finality assessment for this rule. The Commission finds that the change to the types of certifications that COL holders must submit before the requirements of § 50.54(hh)(1) no longer apply ~~constitutes a violation of~~would be inconsistent with the issue finality provisions of part 52. This change is justified as necessary for adequate protection of the public health and safety or common defense and security. There are no other issue finality or backfit changes contained in this rule. ~~In addition, e~~Even if the staffing and communications requirements are considered to be backfitting, they are necessary for licensees to comply with the MBDBE rule and, as such, are necessary for adequate protection of the public health and safety or common defense and security. Thus, the requirements would satisfy the criteria for an exception from the requirement to conduct a backfitting analysis under § 50.109(a)(4)(ii). Availability of the backfit and issue finality assessment is indicated in section XIX of this notice.

Numbered paragraph 4 on page 159 should be replaced with the following:

4. In § 50.54 remove paragraph (hh)(2), redesignate paragraph (hh)(3) as (hh)(2) and revise it to read as follows:

§ 50.54 Conditions of licenses.

* * * * *

(hh) * * *

(2) Paragraph 50.54(hh)(1) does not apply to a licensee that has submitted the certifications required under § 50.82(a)(1) or § 52.110(a) of this chapter.

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A new paragraph should be added at the end of the text on page 136 as follows:

Under § 50.155(i)(~~96~~), the mitigation strategies for beyond-design-basis external events, reliable SFP instrumentation, and emergency planning license conditions will be deemed removed with the exception of license condition 2.D(12)(j)1 from the William States Lee III, Units 1 and 2 licenses on **[INSERT DATE 2 YEARS AFTER THE EFFECTIVE DATE OF THE FINAL RULE]**.

A new paragraph 50.155(i)(9) should be added immediately following paragraph 50.155(i)(8) on page 167 as follows:

(~~96~~) On **[INSERT DATE 2 YEARS AFTER THE EFFECTIVE DATE OF THE FINAL RULE]**, William States Lee III Nuclear Station, Unit 1, License No. NPF-101, license conditions 2.D(12)(d)11 regarding reliable spent fuel pool instrumentation, 2.D(12)(g), "Emergency Planning Actions," and 2.D(12)(j), "Mitigation Strategies for Beyond-Design-Basis External Events," except for 2.D(12)(j)1, and William States Lee III Nuclear Station, Unit 2, License No. NPF-102, license conditions 2.D(12)(d)11 regarding reliable spent fuel pool instrumentation, 2.D(12)(g), "Emergency Planning Actions," and 2.D(12)(j), "Mitigation Strategies for Beyond-Design-Basis External Events," except for 2.D(12)(j)1, are deemed removed from those licenses.