NuScale Power™

NP-LO-0513-3766

May 28, 2013

Secretary, U.S. Nuclear Regulatory Commission
ATTN: Rulemakings and Adjudications Staff
Washington, DC 20555-0001

SUBJECT: NuScale Power, LLC comments on Station Blackout Mitigation Strategies draft Regulatory Basis Document and draft Rule Concepts, Docket ID NRC-2011-0299.

In a Federal Register Notice dated April 10, 2013, the U.S. Nuclear Regulatory Commission solicited public comment on the draft regulatory basis document to support the potential amendment of its regulations concerning nuclear power plant licensees' station blackout mitigation strategies. NuScale's comments are provided in Attachment 1 of this letter.

Sincerely,

Michael A. Brasel
for Edward G. Wallace
Vice President, Regulatory Affairs

cc: Greg Cranston, NRC, TWFN-9 F27

Attachment: NuScale Comments on SBO Mitigation Strategies Draft Regulatory Basis Document

NuScale Comments on SBO Mitigation Strategies Draft Regulatory Basis Document

1) P. 18, Policy Issues. NuScale supports the applicability approach suggested. While the mandatory DCA scope should include installed equipment and connections that support compliance with the new rule as suggested, NRC should also consider explicitly allowing for certification of a broader scope. For example, while portable equipment requirements could appropriately be left to the licensee to resolve, a DC applicant may be able to establish and certify the minimum portable equipment necessary for a design, leaving only the storage location and procedures for the license applicant. Likewise, adequately protective storage locations of that equipment could be included in the DCA and certified. This option would be consistent with NRC's objectives of certifying essentially complete plants and encouraging standardization.

2) P. 19, Implementation Issues. NRC notes an objective of incorporating feedback and lessons-learned from implementation of EA-12-049 into this rulemaking, including inspection and audit results from late 2014 and early 2015 implementations. COMSECY-13-0002 indicates a draft rule in June 2014 and a final rule in December of 2016. It appears any lessons learned from the early implementations would have to be incorporated into the rule after the proposed rule is issued. Is a revised proposed rule expected in that case?

3) P. 19, Implementation Issues. The proposed and final rule schedule presents significant challenges to near-term design certification applicants. Specifically, the 2.5 year gap between proposed and final rule means that several DCAs may be in review when the final mitigation strategies rule is issued, and NRC staff expressly expects changes from proposed to final rule (to address implementation issues and lessons learned). These in-progress DCAs may be required to revise their applications to satisfy the new rule before certification. While the DCA can be prepared pursuant to the proposed rule in anticipation of the final rule, these expected changes to the rule's final language could cause either a substantial revision to address more stringent requirements or unnecessary work in the initial DCA if the revisions lessen the impact of the proposed rule. Close pre-application and in-review coordination may help alleviate that risk; NRC might also consider "grandfathering" in-process applications by certifying them based on the proposed rule and exempting the initial DC from the final rule (final rule addressed for renewal).

4) P. 19, Implementation Issues, 4th Bullet. NRC states that there is ongoing consideration re the use of mitigating strategies equipment under severe accident conditions and that it could directly impact this rulemaking. Referenced issue is unclear, please elaborate. Is this in response to a Fukushima NTTF recommendation? Does NRC mean possibly mandating equipment capability/availability for this purpose, or is it an issue of the usefulness of the equipment for it (e.g. a licensee could take credit for it)? What kind of impact will this have on the rulemaking?

5) Pp. 29-30, Applicability. See previous comment (no. 1) re flexibility for DCA scope to tackle as much as is not site-specific.

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6) P. 30, ELAP definition. At this point, the relationship of items 1 through 4 is unclear. (e.g., 3 and 4 appear to be two separate conditions that would constitute an ELAP, items 1 and 2 are not by themselves an ELAP condition and are also encompassed within 3 and 4, and an ELAP "includ[ing] these conditions is ambiguous). Ensure conditions constituting an ELAP are concrete and unambiguous in proposed rule.

7) P.31, ELAP definition, item 5. Safety-related batteries and the associated distribution system should be inherently reasonably protected by virtue of being safety-related. Also, this exception should not be constrained to safety-related batteries: e.g., batteries meeting adequate design, protection, and reliability assurance requirements should be creditable even if those batteries are not relied upon following design-basis accidents.

8) P. 31, ELAP definition discussion. It is recognized that flexibility in a plant's mitigation strategies to handle diverse conditions is important. However, the discussion here (consideration of failed mitigation strategies connection points and failed DC power) suggests potentially unbounded requirements to deal with successive failures. The mitigations strategies themselves are intended to cope with failures of primary, alternative, and emergency plant systems. NRC should clearly define the required beginning state and mitigation functions to prevent implementation guidance from spiraling uncontrolled, with the recognition that even though those conditions are clearly defined the equipment will have much more diverse uses.

9) P. 31, ELAP definition discussion. NRC appropriately recognizes that loss of heat sink access should be considered a consequence of an ELAP, not an independent condition, and passive plants face diminished and different challenges in this respect. NuScale's passive technology goes even further in precluding the possibility of loss of normal/emergency access to the ultimate heat sink. Rather than Staff attempting to define heat sink challenges for different technologies, the rule should simply leave normal and emergency heat sink access as one potential consequence of an ELAP to be considered by the licensee/applicant on a design-specific basis. NuScale expects to demonstrate that heat sink access cannot reasonably be lost under any duration of ELAP, and should not need to seek an exemption from the rule to do so.

10) P. 32, Mitigation Strategies Requirements. As written in EA-12-049 and conceptualized in this section, the mitigation strategies requirements presume that these strategies and equipment are necessary to mitigate an ELAP condition and that such mitigation will entail three phases, based on existing technology. As already recognized in the Order for Vogtle Units 3 and 4, passive reactor technologies may not encounter the same challenges presented to the current fleet, and advanced reactors may go even further than AP1000. (For example, NuScale may be able to show that a plant under an ELAP could assure core/SFP cooling and containment integrity indefinitely without relying on any portable equipment.) Thus, the rule should be written in such a way as to only mandate these strategies and phases "as needed" for a particular design. This could be accomplished using

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performance-based, non-prescriptive requirements as the Commission has directed (e.g., maintain or restore the essential functions for an indefinite ELAP, omitting language that presumes mitigation equipment and three phases are necessary). Also applies to items 6 and 7.

11) P. 32, Mitigation Strategies Requirements, item 5. The ELAP condition should always be more limiting than an SBO (see Table 1 of the draft document). Accordingly, the new rule should include a provision that avoids licensee's duplicative efforts of demonstrating both SBO coping and ELAP mitigation where the design satisfies both in the same manner.

12) P. 32, Mitigation Strategies Requirements, items 6 and 7. See comment 9 related to making these requirements "as needed" for a particular design.

13) P. 34, Design requirements, discussion. NuScale firmly supports the position that the framework should allow for approaches that rely to a greater extent on engineered features. (See previous comments re potential to not rely on portable equipment or extensive actions at all.) The rule should not drive applicants to need an exemption to utilize such an approach.

14) P. 34, Design requirements, discussion. While an accurate observation for current reactor technologies, the NuScale design will likely not rely upon batteries to assure core cooling, SFP cooling, and containment integrity for ELAP events. This is another case where the rule should be written generically to accommodate advanced technologies. Accordingly, testing "may" (not "would") be required to provide assurance of battery function depending on facility design.

15) P. 34, Supplemental AC Power Source. The relationship between a supplemental ac source and an SBO alternate ac source is not clear. Specifically, could the latter be designed/upgraded to meet the new requirements and thus fulfill both purposes, or does NRC anticipate they would have to be separate sources? NuScale endorses the former approach.

16) P. 34, Supplemental AC, items 1 and 2. New reactor designs may not include an emergency ac power source (e.g., AP1000), and rule language should reflect that possibility. Also, a requirement for electrical independence could be made less prescriptive by allowing for other means to ensure a comparable level of protection from adverse interactions and consequential failures.

17) Pp. 34-35, Supplemental AC. The cumulative effect of the possible requirements would seem that a supplemental ac source is effectively no different than an onsite backup generator (i.e., FLEX stage 2 equipment) but with more stringent requirements. For the supplemental ac source option to be effective option for plants, NRC should carefully consider the purpose and benefit of such an approach.

18) P. 36, Link with Current 10 CFR 50.63 Requirements. See previous comment (no. 10) re SBO requirements encompassed by ELAP mitigation. Again, NuScale supports NRC's suggestion that the

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ELAP rule could obviate the need for an SBO coping determination. NRC should also ensure that implementation requirements (e.g., procedures, drills, etc.) are not duplicative.

19) P. 37, Implementation. See previous comments re flexibility for a new DCA to address and seek certification on additional scope as feasible for the design.

20) P. 37, Question 1. A single rule encompassing LOLA, SBO, and ELAP is likely to be more efficient and less cumbersome for a new applicant for design certification and an operating license, but possibly create challenges and additional work for existing licensees that will already have handled the existing rules and implemented EA-12-049. NRC should consider a comprehensive new rule for new applications, while leaving the existing framework in place for existing plants.

21) Pp. 37-38, Question 2.

    a-c. New reactor and SMR designs should have to meet the same performance-based requirements as existing plants. The advanced safety features of new plants should reduce the risk from BDB-events and need for active ELAP mitigation, so a mandate to include a supplemental ac source would be inappropriate. If a particular design needs or chooses to rely upon an ac source, only then should the capability and protections for that ac source be considered.

    d. See previous comments regarding DCA versus COLA scope.

    e. The final safety analysis report should have the same level of detail for mitigation strategies and equipment design as other sections provide for their respective areas. Supporting information should be in relevant plant procedures and engineering evaluations/calculations.

RulemakingComments Resource

From: Becker, Gary [gbecker@nuscalepower.com]
Sent: Tuesday, May 28, 2013 8:37 PM
To: RulemakingComments Resource
Cc: Cranston, Gregory
Subject: Comments for Docket NRC-2011-0299, SBO Mitigation Strategies draft Regulatory Basis Document
Attachments: NP-LO-0513-3766_NuScale Comments on SBO Mitigation Strategies.pdf

Attached are NuScale Power's comments on the subject rulemaking document.

Thank you,

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