

February 11, 2016
Secretary, U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001
ATTN: Rulemakings and Adjudications Staff

SUBJECT: NuScale Power, LLC Comments on the Draft Mitigation of Beyond Design Basis Events Rulemaking Package (Docket ID NRC-2014-0240)

REFERENCES:

1. Letter from Nuclear Energy Institute to U.S. Nuclear Regulatory Commission, "Industry Comments on Draft Mitigation of Beyond Design Basis Events Rulemaking Package (Docket ID NRC-2014-0240)," dated February 9, 2016.
2. NEI 12-06, "Diverse and Flexible Coping Strategies (FLEX) Implementation Guide," Revision 1A, dated October 2015 (ML15279A426).

This letter is being submitted in response to the U.S. Nuclear Regulatory Commission (NRC) request for comments on the draft Mitigation of Beyond Design Basis Events Rulemaking Package (Docket ID NRC-2014-0240).

NuScale Power, LLC (NuScale) appreciates the opportunity to comment on the proposed rulemaking and guidance documents. [NuScale endorses the comments submitted by the Nuclear Energy Institute (NEI) on behalf of the industry (Reference 1). NuScale-CL-1] This letter and the attachment to this letter provides additional comments to the proposed rulemaking and guidance documents.

The NuScale plant is designed to maintain core cooling, spent fuel pool cooling, and containment integrity, independent of alternating current (AC) or direct current (DC) power sources, for an extended duration. Because it does not rely on electrical power supply and distribution to perform these functions, the passive design of the NuScale design will demonstrate a strong coping capability without reliance on AC or DC power and minimal manual operator actions in an extended loss of AC power event.

[The draft rulemaking and supporting guidance is based on specific assumptions and design features relevant to existing light water reactor plant designs. NuScale has, and other advanced nuclear reactor designs will likely have, an inherently different design that does not align with these assumptions or design features. NuScale recommends that the final rulemaking not discourage advanced nuclear reactor plant designs from making enhancements to their designs by limiting a designer's ability to take credit for features inherent in their designs that can be demonstrated to address these beyond design basis external events. Specific examples where NuScale has identified differences in the design assumptions that could impact an advanced nuclear reactor design, such as NuScale, are provided in the attachment. Comments and recommendations for addressing these differences are also provided. NuScale CL-2]

[As an alternative to updating the draft guidance to reflect advanced designs such as NuScale's design, NuScale could develop a design specific appendix to NEI 12-06 (Reference 2) for NRC endorsement or demonstrate an acceptable methodology to meet the requirements of the regulation as part of the design certification application. Further discussions are needed with the NRC Staff to clarify the comments provided in this letter and the impact to the NuScale design certification application. NuScale CL-3]

This letter makes no regulatory commitments and no revisions to any existing regulatory commitments. Please feel free to contact Jennie Wike at 541-360-0539 or at jwike@nuscalepower.com if you have any questions.

Sincerely,
Thomas A.. Bergman
Vice President,, Regulatory Affairs
NuScale Power, LLC

Distribution: Division of Advanced Reactors and Rulemaking
Frank Akstulewicz, NRC, TWFN-6C20
Greg Cranston, NRC, TWFN-6E7
Omid Tabatabai, NRC, TWFN-6E7

Mark Tonacci, NRC, TWFN-6E7

Attachment: NuScale Comments on the Draft Mitigation of Beyond Design Basis Events Rulemaking Package

NuScale Comments on the Draft Mitigation of Beyond Design Basis Events Rulemaking Package

Document/Section

DG-1301 1.1

Text

NEI 12-06, Revision 1A, Section 3.2.2,

Guideline 13 (as endorsed by DG-1301 in Section 1.1) states:

“...Regardless of installed coping capability, all plants will include the ability to use FLEX equipment to provide RPV/RCS/SG makeup as a means to provide a diverse capability beyond plant equipment...”

Concern

For passive plants that do not require Reactor Pressure Vessel (RPV) makeup to maintain or restore core cooling in an extended loss of AC power (ELAP) event, a transition from installed equipment to FLEX equipment should not be required.

Additional flexibility should be provided in DG-1301 for passive plant designs that demonstrate RPV makeup is not required to maintain core cooling.

Suggestion for change

Propose the following clarification in DG-1301, Section 1.1, with respect to the statement from Section 3.2.2 of NEI 12-06 (Guideline 13), as follows:

“...Regardless of installed coping capability, **plants that are not designed with passive closed loop cooling capability** will include the ability to use FLEX equipment to provide RPV/RCS/SG makeup as a means to provide a diverse capability beyond plant equipment...”**NuScale TC-1]**

Document/Section

DG-1301 1.1.1.2

Text

“The transition phase will be accomplished by supplementing the use of installed equipment with portable equipment stored on-site. The strategies for this phase must be capable of maintaining core cooling, containment, and SFP cooling capabilities (following their restoration, if applicable) from the time they are implemented until they can be supplemented by offsite resources in the final phase. The duration of the transition phase should provide sufficient overlap with both the initial and final phases to account for the time it takes to install equipment and for uncertainties.”

Concern

DG-1301 should allow for new

plant designs to transition from utilizing installed plant equipment (Phase 1) to offsite portable equipment (Phase 3) if the applicant can demonstrate sufficient coping duration, as noted in 10 CFR 50.155(b)(1)(ii).

Suggestion for Change

Add the following clarification to DG-1301:

“Depending upon the plant design, a transition phase using on-site portable equipment may not be needed if the initial phase is of sufficient duration (e.g., 72 hours or greater) to transition directly to the final phase.” **NuScale TC-2]**

Document/Section

DG-1301 1.1.1.3

Text

“The final phase will be accomplished using the portable equipment stored on-site augmented with additional equipment and consumables obtained from off-site until power, water, and coolant injection systems are restored or commissioned.”

Concern

The proposed rulemaking for

10 CFR 50.155(b)(1)(ii) states the following concerning the use of offsite resources:

“(ii) The acquisition and use of offsite assistance and resources to support the functions required by paragraph (b)(1)(i) of this section indefinitely, or until sufficient site functional capabilities can be maintained without the need for the mitigation strategies.”

The statement in DG-1301 contradicts the requirement described in 10 CFR 50.155(b)(1)(ii). The proposed rule allows plants to rely on site functional capabilities instead of mitigating strategies and offsite resources for indefinite coping.

Suggestion for Change

DG-1301 should align with 10 CFR 50.155(b)(1)(ii) by specifying that offsite resources may not be needed if sufficient site capabilities are available that preclude the need for mitigating strategies or offsite resources, as follows:

“The final phase will be accomplished using either the portable equipment stored on-site **or installed plant equipment**, augmented with additional equipment and consumables obtained from off-site **(if needed)** until power, water, and coolant injection systems are restored or commissioned.”

DG-1301 should also include the following clarification provided in the FRN for 10 CFR 50.155(b)(1)(ii):

“The proposed requirements to enable ‘the acquisition and use of offsite assistance and resources to support the functions required by (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 would 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 spent fuel pool 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 would be necessary for the initial period following the event; less detailed planning would be necessary as the event progresses and the licensee can mobilize additional support for recovery.”

The guidance included in DG-1301 should define the “initial period following the event” for which detailed planning is required, as noted in the FRN. Passive plants with a long coping duration (>30 days) should not be required to have a detailed plan for obtaining resources to supplement installed equipment. 30 days is sufficiently long to develop detailed plans and necessary contracts to supply additional support, such as diesel oil, portable equipment, or makeup water. A pre-existing contract for offsite resources is not necessary for a plant with a coping duration greater than 30 days. NuScale TC-

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[Document/Section

DG-1301 1.2

Text

“NEI 12-06, Rev. 1A, Section 3.2.2 provides 17 guidelines for use in the development of the guidance and strategies under 10 CFR 50.155(b)(1). Guideline (2) of this section states: ‘Plant procedures/guidance should recognize the importance of AFW/HPCI/ RCIC/IC during the early stages of the event and direct the operators to invest appropriate attention to assuring its initiation and continued, reliable operation throughout the transient since this ensures decay heat removal.’”

... Appendices C and D of NEI 12-06, Rev. 1A contain summaries of performance attributes for boiling-water and pressurized-water reactors respectively, address guideline (2) of NEI 12-06, Rev. 1A, Section 3.2.2 by specifying that procedures/guidance will include local manual initiation of AFW/EFW/HPCI/RCIC/IC...”

Concern

For new plants with a passive failsafe design (i.e., SSCs in support of core cooling fail to the required safety position upon loss of AC power), local manual initiation may not be necessary or possible. For example, some passive plant designs do not rely on pumps or other active components for core cooling, and therefore, manual initiation as specified in this section of the guidance would not be possible.

Suggestion for Change

Add the following statement to DG-1301:

“...section 3.2.2 by specifying that procedures/guidance will include local manual initiation of AFW/EFW/HPCI/ RCIC/IC. **No manual actions are required to initiate passive failsafe SSCs.**”
NuScale TC-4]