

NuScaleDCRaisPEm Resource

From: Cranston, Gregory
Sent: Tuesday, May 16, 2017 3:14 PM
To: RAI@nuscalepower.com
Cc: NuScaleDCRaisPEm Resource; Lee, Samuel; Chowdhury, Prosanta; Karas, Rebecca; Thomas, Matt; Bovol, Bruce; Franovich, Rani
Subject: Request for Additional Information No. 24, RAI 8746
Attachments: Request for Additional Information No. 24 (eRAI No. 8746).pdf

Attached please find NRC staff's request for additional information concerning review of the NuScale Design Certification Application.

Please submit your response within 60 days of the date of this RAI to the NRC Document Control Desk.

If you have any questions, please contact me.

Thank you.

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Licensing Branch 1 (NuScale)
Division of New Reactor Licensing
Office of New Reactors
U.S. Nuclear Regulatory Commission
301-415-0546

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Request for Additional Information No. 24 (eRAI No. 8746)

Issue Date: 05/16/2017

Application Title: NuScale Standard Design Certification - 52-048

Operating Company: NuScale Power, LLC

Docket No. 52-048

Review Section: 15.06.02 - Radiological Consequences of the Failure of Small Lines Carrying Primary
Coolant Outside Containment

Application Section: 15.6

QUESTIONS

15.06.02-1

In accordance with 10 CFR 52.47(a)(2)(iv)(A) and 10 CFR 52.47(a)(2)(iv)(B), the failure of a small line break carrying primary coolant outside containment shall not result in a dose to an individual at any point on the boundary of the exclusion area for any 2-hour period following the onset of the postulated fission product release in excess of 25 roentgen equivalent man (rem) total effective dose equivalent (TEDE), and shall not result in a dose to an individual at any point on the outer boundary of the low population zone (LPZ) in excess of 25 rem TEDE from exposure to the radioactive cloud resulting from the postulated fission product release.

To meet the requirements mentioned above, as they relate to the failure of small lines carrying primary coolant outside of containment, the accident analysis should assume initial conditions and input parameters that maximize the severity of the accident by maximizing the mass and energy release out of the break and by maximizing reactor coolant system (RCS) pressure.

In the Final Safety Analysis Report (FSAR), Tier 2, Section 15.6.2.3.2, "Input Parameters and Initial Conditions," the applicant states that both loss of power conditions and no loss of power conditions are examined at the start of the event to assess conditions which maximize the severity of the consequences of the event. The applicant then goes on to qualitatively discuss the loss of normal alternating current (AC) power input assumption, the loss of normal direct current (DC) and normal AC power input assumption, and the loss of the highly reliable DC power system, normal DC and normal AC power input assumption, but does not provide any information related to the event in which no loss of power occurs. Based on the docketed information, the staff is unable to determine which power input assumption is the most limiting. The staff requests the applicant to provide additional information in the FSAR discussing the no-loss-of-power input assumption and justify whether or not the applicant's current assumed loss of normal AC power input assumption is the most limiting in terms of maximizing mass and energy release and maximizing RCS pressure.