

NuScaleTRRaisPEm Resource

From: Bavol, Bruce
Sent: Wednesday, February 15, 2017 6:16 AM
To: NuScaleTRRaisPEm Resource
Subject: Request for Additional Information (non-prop) Letter No. 12 for the Review of NuScale TR-0116-20825, "Applicability of AREVA Fuel Methodology for the NuScale Design"
Attachments: Final RAI 8727_Letter 12_Non_Prop.docx

Dear Mr. Bergman,

Attached please find NRC staff's request for additional information concerning NuScale topical report entitled, "Applicability of AREVA Fuel Methodology for the NuScale Design," Revision 1. This attachment has been redacted and is the non-proprietary version.

Please submit your response by April 10, 2017, to the NRC Document Control Desk. If you have any questions, please feel free to contact me.

Thank you,

Bruce M. Bavol

Project Manager
NuScale, Licensing Projects Branch 1
Office of New Reactors
Nuclear Regulatory Commission
Work Phone: (301) 415-6715
Email: Bruce.Bavol@nrc.gov

Hearing Identifier: NuScale_SMR_DC_TR_Public
Email Number: 11

Mail Envelope Properties (e633dfc983c144d4b46d272aa110c280)

Subject: Request for Additional Information (non-prop) Letter No. 12 for the Review of NuScale TR-0116-20825, "Applicability of AREVA Fuel Methodology for the NuScale Design"
Sent Date: 2/15/2017 6:15:37 AM
Received Date: 2/15/2017 6:15:38 AM
From: Baval, Bruce

Created By: Bruce.Baval@nrc.gov

Recipients:
"NuScaleTRRaisPEm Resource" <NuScaleTRRaisPEm.Resource@nrc.gov>
Tracking Status: None

Post Office: HQPWMSMRS06.nrc.gov

Files	Size	Date & Time
MESSAGE	695	2/15/2017 6:15:38 AM
Final RAI 8727_Letter 12_Non_Prop.docx		35741

Options
Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:

Mr. Thomas A. Bergman
Vice President, Regulatory Affairs
NuScale Power, LLC
1100 Circle Boulevard, Suite 200
Corvallis, OR 97330

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 12 FOR THE
REVIEW OF TOPICAL REPORT TR-0116-20825, "APPLICABILITY OF AREVA
FUEL METHODOLOGY FOR THE NUSCALE DESIGN," REVISION 1
(PROJ0769)

Dear Mr. Bergman:

In a July 1, 2016, letter, NuScale Power, LLC, (NuScale) submitted Topical Report (TR)-0116-20825, "Applicability of AREVA Fuel Methodology for the NuScale Design," Revision 1 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16187A017) for the U.S. Nuclear Regulatory Commission (NRC) staff's review. The NRC staff is performing a detailed review of this TR to enable the staff to reach a conclusion on the safety of the proposed application. The NRC staff has identified that additional information is needed to continue portions of the review. The NRC staff's request for additional information (RAI), proprietary in nature, has been redacted and is contained in the enclosure to this letter.

To support the review schedule, NuScale is requested to respond within 60 calendar days of the date of this letter. If changes are needed to the topical report, the NRC staff requests that the RAI response include the proposed wording changes.

If you have any questions or comments concerning this matter, you may contact me at 301-415-6715 or by e-mail at Bruce.Bavol@nrc.gov or you may contact Gregory Cranston at 301-415-0546 or gregory.crantson@nrc.gov.

Sincerely,

/RA/

Bruce Bavol, Project Manager
Licensing Branch 1
Division of New Reactor Licensing
Office of New Reactors

Docket No. PROJ0769
eRAI Tracking No. 8727

Enclosure: Request for Additional Information

Request for Additional Information 8727
TR-0116-20825-P Revision 1
(Question 29594) 04.02 - Fuel System Design

GDC 10 requires that the reactor core and associated coolant, control, and protection systems shall be designed with appropriate margin to assure that specified acceptable fuel design limits (SAFDLs) are not exceeded during any condition of normal operation, including the effects of anticipated operational occurrences (AOOs). SRP Section 4.2 (II)(1)(B)(v) provides guidance stating that the fuel failure criteria should address excessive fuel enthalpy.

- a) Page 8 of TR-0116-20825-P Revision 1 provides design parameters for the NuScale fuel design. The staff notes that there are a few relevant parameters missing. Please provide the pellet dish and chamfer dimensions, plenum length, and plenum spring dimensions to allow staff to evaluate the void volume calculations.
- b) Page 15 of TR-0116-20825-P Revision 1 discusses a clad creep analysis and states that “a revised []”. It is unclear to the staff if this is a new methodology or is part of a previously approved methodology.

Provide a more detailed description of the revised approach used, whether it is a revised approach to a previously approved methodology or a new methodology, and the intent of its use. If this revised approach is being used for more than additional justification for the CROV methodology, then update the topical report to include this clarification.

- c) Section 5.2.1.1 of TR 0116-20825 Revision 1 discusses the heat transfer model used by COPERNIC for the coolant-cladding interface and the applicability of this model to the NuScale design. It states that the []

].

Is two-phase flow anticipated in the NuScale reactor during normal operation or AOOs?

- d) Page 23 of TR-0116-20825 Revision 1 discusses the applicability of the [] correlations to the NuScale reactor with natural circulation based on the Reynold’s number being greater than that where forced convection has been seen.

Have any tests or analyses been performed to demonstrate that either of these correlations would be valid under typical conditions for the NuScale reactor (i.e. power, coolant temperature, and flow rate)? If so, provide a reference to, or summary of, the tests or analyses to minimize the need for future RAls during the topical report review.

Enclosure