

March 9, 2018

MEMORANDUM TO: Samuel S. Lee, Chief
Licensing Branch 1
Division of New Reactor Licensing
Office of New Reactors

FROM: Marieliz Vera, Project Manager /RA/
Licensing Branch 1
Division of New Reactor Licensing
Office of New Reactors

SUBJECT: SUMMARY OF THE JANUARY 24, 2018, CATEGORY 1 PUBLIC
TELECONFERENCE WITH NUSCALE POWER, LLC DESIGN
CERTIFICATION APPLICATION REQUEST FOR ADDITIONAL
INFORMATION RESPONSES NO. 9181 REGARDING CHAPTER
3, SECTION 3.9.4, "CONTROL ROD DRIVE SYSTEM"

The U.S. Nuclear Regulatory Commission (NRC) held a Category 1 public teleconference on January 24, 2018, to discuss the responses to NuScale Power, LLC (NuScale) Design Certification, Request for Additional Information (RAI) No. 9181, regarding Final Safety Analysis Report Tier 2, Chapter 3, Section 3.9.4, "Control Rod Drive System." Participants included personnel from NuScale and members of the public.

The public meeting notice can be found in the Agencywide Documents Access and Management Systems (ADAMS) under Accession No. ML18010A044. This meeting notice was also posted on the NRC public Website.

The meeting agenda and list of participants can be found in Enclosures 1 and 2, respectively. Some of the technical issues discussed are included in Enclosure 3.

CONTACT: Marieliz Vera, NRO/DNRL
301-415-5861

Summary:

The purpose of this meeting was to discuss the response to RAI No. 9181 (ML17345A943). Based on the comments presented by the NRC staff (Enclosure 3) for RAI No. 9181 and the resulting discussion with NuScale, a follow up RAI will be sent to NuScale, per their request.

No comments from members of the public were received.

Docket No. 52-048

Enclosures:

1. Meeting Agenda
2. List of Attendees
3. Comments presented by NRC staff

cc w/encls.: DC NuScale Power, LLC Listserv

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TELECONFERENCE WITH NUSCALE POWER, LLC DESIGN CERTIFICATION
APPLICATION REQUEST FOR ADDITIONAL INFORMATION RESPONSES NO.
9181 CHAPTER 3, SECTION 3.9.4, "CONTROL ROD DRIVE SYSTEM"
DATE: 3/09/2018

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DATE	3/02/2018	3/08/2018	3/09/2018

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U.S. NUCLEAR REGULATORY COMMISSION
CATEGORY 1 PUBLIC TELECONFERENCE WITH NUSCALE POWER, LLC
DESIGN CERTIFICATION APPLICATION RESPONSES TO REQUEST FOR
ADDITIONAL INFORMATION NO. 9181 CHAPTER 3, SECTION 3.9.4, “CONTROL ROD
DRIVE SYSTEM”

January 24, 2018

11:00 p.m. – 12:00 p.m.

AGENDA

Public Meeting	
11:00-1:10	Introductions and identification of topics
11:10-11:40	NuScale Power, LLC response to request for additional information (RAI) 9181 discussion
11:40-11:50	Public comments
11:50-12:00	Closed portion (if needed)

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ADDITIONAL INFORMATION NO. 9181 CHAPTER 3, SECTION 3.9.4, “CONTROL ROD
DRIVE SYSTEM”

LIST OF ATTENDEES

January 24, 2018

NAME	AFFILIATION
Marieliz Vera	U.S. Nuclear Regulatory Commission (NRC)
Nicholas Hansing	NRC
Marty Bryan	NuScale Power, LLC (NuScale)
Greg Myers	NuScale
Matt Mallet	NuScale
Vern Pence	NuScale
Pat Davis	Public
Sarah Fields	Public

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DRIVE SYSTEM”

Request Additional for Information 9181:

In response to Request for Additional Information (RAI) 9181, NuScale provided:

The following design requirements will be stipulated to the Certificate Holder to ensure control rod drive shaft integrity and functionality over the full range of postulated conditions:

- control rod drive (CRD) shaft scram loads and control rod drive shaft deflection limits will be established by testing. CRD shaft scram and safe shutdown earthquake (SSE) loads are added to Final Safety Analysis Report (FSAR) Table 3.9-6 “Required Load Combinations for Control Rod Drive Mechanism American Society of Mechanical Engineers Stress Analysis” for Service Level A and D loading combinations for control rod drive shafts.
- The control rod drive shafts are evaluated against the limits of NG-3222.1 and NG-3222.2 for normal operating (Service Level A) conditions. Service Level A loads for the control rod drive shafts are the deadweight of the control rod assembly and scram loading.
- The control rod drive shafts are evaluated against 110 percent of the limits of NG-3222.1 and NG-3222.2 for Service Level D loads. Consideration of cyclic loading is not required.
- Martensitic stainless steel materials used in the control rod drive shafts shall be Charpy V-notch tested in accordance with NG-2331.

The requirements stated above primarily apply to the design aspects of the control rod drive shaft. However, as noted in the applicant’s response to RAI 8835, Question 03.09.04-8, “Application of Subsection NG includes design, material, fabrication, and inspection.” As delineated in NG-1122, NG-2121, NG-3311, and NG-4110, the rules of certain Articles of Subsection NG are only applied to internal structures when specifically stipulated by the Certificate Holder. As such, it is the responsibility of the designer to describe the design functions and requirements for internal structures.

The NRC staff seeks further information on how the requirements of the control rod drive mechanisms (CRDM) shafts described in the response to RAI 9181 ensure that the CRDM shafts will perform the credited safety function. The applicant should describe material controls for the identification, heat treatment, repair, welding, examination, fabrication, and quality

assurance for the control rod drive shafts which the designer deems necessary to ensure that the safety functions will be performed.

Furthermore, in the initial response, there is a typographical error in the first bullet point (SEE) and the addition to FSAR Table 3.9-6 (SCRAM) is an undefined term in FSAR Table 3.9-2.