



March 19, 2018

Docket No. 52-048

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
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11555 Rockville Pike
Rockville, MD 20852-2738

SUBJECT: NuScale Power, LLC Response to NRC Request for Additional Information No. 363 (eRAI No. 9311) on the NuScale Design Certification Application

REFERENCE: U.S. Nuclear Regulatory Commission, "Request for Additional Information No. 363 (eRAI No. 9311)," dated February 07, 2018

The purpose of this letter is to provide the NuScale Power, LLC (NuScale) response to the referenced NRC Request for Additional Information (RAI).

The Enclosure to this letter contains NuScale's response to the following RAI Question from NRC eRAI No. 9311:

- 09.05.03-2

This letter and the enclosed response make no new regulatory commitments and no revisions to any existing regulatory commitments.

If you have any questions on this response, please contact Carrie Fosaaen at 541-452-7126 or at cfosaaen@nuscalepower.com.

Sincerely,

A handwritten signature in black ink, appearing to read "Zackary W. Rad".

Zackary W. Rad
Director, Regulatory Affairs
NuScale Power, LLC

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Enclosure 1: NuScale Response to NRC Request for Additional Information eRAI No. 9311



Enclosure 1:

NuScale Response to NRC Request for Additional Information eRAI No. 9311

Response to Request for Additional Information Docket No. 52-048

eRAI No.: 9311

Date of RAI Issue: 02/07/2018

NRC Question No.: 09.05.03-2

10 CFR 50.34(f)(2)(iii) states that an application shall provide, for Commission review, a control room design that reflects state-of-the-art human factor principles prior to committing to the fabrication or revision of fabricated control room panels and layouts. NUREG-0700, "Human-System Interface Design Review Guidelines," provides detailed acceptance criteria for HFE design attributes including lighting.

NUREG-0800, Standard Review Plan (SRP), Section 9.5.3, NUREG-0700, "Human-System Interface Design Review Guidelines," and the Illuminating Engineering Society of North America (IESNA) lighting handbook are guidance for Plant Lighting System.

1. In its response to RAI 8825, Question 09.05.03-1, Part A, NuScale stated that "FSAR [Tier 2] Section 9.5.3 has been revised to more clearly indicate that the illumination levels for normal operation in the main control room (MCR) and remote shutdown station (RSS) conform to the guidance of NUREG-0700 Table 12.1. Normal lighting in other areas of the plant is based on the IESNA Lighting Handbook, which may not in all cases conform to the guidance provided in Table 12.10 of NUREG-0700."

Based on markup of Table 9.5.3-1: Plant Illumination Levels, other areas of plant have an illumination of 2 foot-candles.

QUESTION: In the response to RAI 8825, Question 09.05.03-1, the applicant did not provide specific information regarding the areas identified as "other areas of the plant" and did not specify which cases do not conform to the guidance provided in Table 12.10 of NUREG-0700. Please specify what areas are covered by the term "other areas of plant." Where the applicant deviates from the guidance in NUREG - 0700, please describe how the application demonstrates compliance with 10 CFR 50.34(f)(2)(iii).

2. In its response to RAI 8825, Question 09.05.03-1, Part B, NuScale stated that "FSAR [Tier 2] Section 9.5.3 states that illumination levels are a minimum of 10 foot-candles in emergency operation areas and a minimum of 2 foot-candles in other 'areas of the plant.' The testing and inspection programs for emergency lighting will be determined and developed by the licensee."

QUESTION: Where in the FSAR is it stated that the testing and inspection programs (i.e., maintenance rule program) for emergency lighting will be determined and developed by the



licensee? If not specified in the FSAR, provide a COL item that will require the COL applicant to determine and develop the testing and inspection programs.

NuScale Response:

Question 1 Response

10 CFR 50.34(f)(2)(iii) is specifically directed toward human factors (including illumination levels) associated with an applicant's control room. As provided in response to RAI 8825, Table 9.5.3-1 was modified to provide the illumination levels for the NuScale main control room (MCR) and the remote shutdown station (RSS) areas. The illumination levels provided for the MCR and RSS meet the recommendations of NUREG-0700, Table 12.1.

Table 9.5.3-1 also included a line item for "Emergency operating lighting, other areas of the plant." This term was intended to cover emergency lighting in other areas of the plant that do not include the CR and RSS areas described in Table 9.5.3-1. Emergency lighting illumination levels outside the MCR meet National Fire Protection Association Codes NFPA-70-2014 and NFPA-101-2015. Details regarding emergency plant lighting are provided in FSAR section 9.5.3.2.

NUREG-0700, Table 12.10 provides recommended levels of illumination for inspection and assembly activities. In the response to RAI 8825, NuScale stated that normal lighting (a minimum of 2 foot-candles) in other areas of the plant is based on the IESNA Lighting Handbook, which would cover these activities. The IESNA Lighting Handbook along with NUREG-0700 are referenced as acceptable sources for lighting system design in NUREG-0800, Section 9.5.3, Item II.4. Thus, the IESNA Lighting Handbook is considered an acceptable alternative to NUREG-0700, Table 12.10 recommendations.

Question 2 Response

NuScale has determined a specific COL item is not necessary for the plant lighting system (PLS) testing and inspection programs. Rather, PLS inspection and testing is covered by the more broadly stated requirements of COL Item 13.5-3. COL Item 13.5-3 requires that an applicant that references the NuScale design certification will describe the site-specific maintenance and other operating procedures. Inspection and testing of the PLS would be covered under these categories of procedures and would be subject to NRC verification.

Impact on DCA:

There are no impacts to the DCA as a result of this response.
