



November 21, 2017

Docket No. 52-048

U.S. Nuclear Regulatory Commission  
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Rockville, MD 20852-2738

**SUBJECT:** NuScale Power, LLC Response to NRC Request for Additional Information No. 249 (eRAI No. 9135) on the NuScale Design Certification Application

**REFERENCE:** U.S. Nuclear Regulatory Commission, "Request for Additional Information No. 249 (eRAI No. 9135)," dated September 29, 2017

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. 9135:

- 14.03.03-5

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 Steven Mirsky at 240-833-3001 or at [smirsky@nuscalepower.com](mailto:smirsky@nuscalepower.com).

Sincerely,

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

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

Distribution: Gregory Cranston, NRC, OWFN-8G9A  
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Enclosure 1: NuScale Response to NRC Request for Additional Information eRAI No. 9135



RAIO-1117-57231

**Enclosure 1:**

NuScale Response to NRC Request for Additional Information eRAI No. 9135

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

**eRAI No.:** 9135

**Date of RAI Issue:** 09/29/2017

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**NRC Question No.:** 14.03.03-5

The NRC regulations in 10 CFR 52.47(b)(1) require that a design certification application contain the inspections, tests, analyses, and acceptance criteria (ITAAC) that are necessary and sufficient to provide reasonable assurance that, if the inspections, tests, and analyses are performed and the acceptance criteria met, a plant that incorporates the design certification is built and will operate in accordance with the design certification, the provisions of the Atomic Energy Act, and the NRC's regulations. The ITAAC proposed in the NuScale FSAR Tier 1, Section 2.1, "NuScale Power Module," Section 2.2, "Chemical and Volume Control System," and Section 2.4, "Turbine Generator System," do not include ITAAC to verify the functional arrangement or installed configuration of the applicable systems and components. See June 21, 2016, transmittal letter providing additional standardized ITAAC, ADAMS Accession No. ML16160A179). Verification of the installed configuration of a system includes verifying that the system and its components are installed in a manner that supports the safety functions for which the system is intended, consistent with procurement, construction, and installation specifications. This verification should include visual inspection (e.g., walkdown) of the system, including its flowpath, and may be performed in conjunction with other preoperational activities. Examples of the verification performed by the licensee to complete this ITAAC include confirmation of valve orientation, verification of adequate access for inservice inspection (ISI) and inservice testing (IST) activities, and confirmation that interferences are avoided. The Design Commitment of these ITAAC should specify that the installed configuration of the system, including its flowpath, is consistent with procurement, construction, and installation specifications such that the system's safety functions can be achieved. The ITA should specify that inspection of the as-built system will be performed to verify the installed configuration, including the flowpath. The Acceptance Criteria should specify that the system's installed configuration, including the flowpath, of the components listed in the applicable ITAAC table is consistent with procurement, construction, and installation specifications such that the system's safety functions can be achieved. As discussed above, the NRC staff requests that the NuScale design certification applicant include proposed ITAAC to verify the functional arrangement or installed configuration of the applicable systems and components in NuScale FSAR Tier 1, Section 2.1, 2.2, and 2.4.



### **NuScale Response:**

The requested functional arrangement or installed configuration ITAAC for the NuScale Power Module and the Chemical and Volume Control System is redundant to the following existing ITAAC: 02.01.01, 02.01.02 and 02.01.03 for the NuScale Power Module and 02.02.01 and 02.02.02 for the Chemical and Volume Control System. These ITAAC provide reasonable assurance that SSCs are properly installed and will operate as designed. The requested functional arrangement or installed configuration ITAAC for the Turbine Generator System does not meet the ITAAC first principles delineated in FSAR Section 14.3.2.1 because this system is neither safety-related nor risk-significant. Moreover, the Quality Assurance Program (QAP) provides regulatory oversight for quality-related activities associated with plant design, procurement, fabrication, installation, construction, testing, and operation. The QAP ensures that these activities are implemented in accordance with licensee procedures, applicable codes, standards and NRC regulations. QAP implementation as well as turnover and testing confirm proper system configuration and performance.

ITAAC and the QAP have distinct, yet complementary roles. While the QAP assures the proper implementation of quality-related activities, ITAAC focus on verifying that as-built SSCs satisfy the top level design and performance standards. A functional arrangement or installed configuration ITAAC is incongruous with the different purposes of ITAAC and the QAP.

Inclusion of this ITAAC contradicts the first principle, delineated in DCD Section 14.3.2, of verifying the top-level design and performance characteristics of Tier 1 as compared to the balance of design information in Tier 2. Due to its ambiguous nature, this ITAAC is unverifiable under the ITAAC closure process.

This RAI requests that ITAAC acceptance be consistent with procurement, construction, and installation specifications for confirmation of system safety functions. This would require the extraction of every design attribute that supports system safety functions in the aforementioned three types of specifications. Then, each of these attributes would need to be inspected, reviewed, and approved in order close this ITAAC. The scope of such an ITAAC would exceed all the ITAACs delineated in the NuScale DCA and contradicts ITAAC first principles as described in DCD Section 14.3.2.

### **Impact on DCA:**

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