



April 13, 2018

Docket No. 52-048

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

SUBJECT: NuScale Power, LLC Response to NRC Request for Additional Information No. 391 (eRAI No. 9370) on the NuScale Design Certification Application

REFERENCE: U.S. Nuclear Regulatory Commission, "Request for Additional Information No. 391 (eRAI No. 9370)," dated March 20, 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 Enclosures to this letter contain NuScale's response to the following RAI Question from NRC eRAI No. 9370:

- 18-25

Enclosure 1 is the proprietary version of the NuScale Response to NRC RAI No. 391 (eRAI No. 9370). NuScale requests that the proprietary version be withheld from public disclosure in accordance with the requirements of 10 CFR § 2.390. The enclosed affidavit (Enclosure 3) supports this request. Enclosure 2 is the nonproprietary version of the NuScale response.

This letter and the enclosed responses 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.

Sincerely,

A handwritten signature in black ink, appearing to read "Zackary W. Rad". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

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

Distribution: Samuel Lee, NRC, OWFN-8G9A
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RAIO-0418-59511

Enclosure 1: NuScale Response to NRC Request for Additional Information eRAI No. 9370, proprietary

Enclosure 2: NuScale Response to NRC Request for Additional Information eRAI No. 9370, nonproprietary

Enclosure 3: Affidavit of Zackary W. Rad, AF-0418-59515

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RAIO-0418-59511

Enclosure 1:

NuScale Response to NRC Request for Additional Information eRAI No. 9370, proprietary



Enclosure 2:

NuScale Response to NRC Request for Additional Information eRAI No. 9370, nonproprietary

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

eRAI No.: 9370

Date of RAI Issue: 03/20/2018

NRC Question No.: 18-25

Title 10 of the *Code of Federal Regulations* (10 CFR) Section 52.47(a)(8) requires an applicant for a design certification to provide an FSAR [Final Safety Analysis Report] which includes the information necessary to demonstrate compliance with any technically relevant portions of the Three Mile Island requirements set forth in 10 CFR 50.34(f), with certain exceptions. Section 10 CFR 50.34(f)(2)(ii) requires an applicant to "Establish a program, to begin during construction and follow into operation, for integrating and expanding current efforts to improve plant procedures. The scope of the program shall include.....human factors engineering..." The current NRC guidance for developing a human factors engineering (HFE) program is NUREG-0711, Rev 3, "Human Factors Engineering Program Review Model."

NUREG-0711 criterion 4.4(6) states:

"The applicant's FA (function allocation) should consider not only the primary allocations to personnel, those functions for which personnel have the primary responsibility, but also their responsibilities to monitor automatic functions, detect degradations and failures, and to assume manual control when necessary."

Section 1.2 "Scope," of the FRA (functional requirements analysis)/FA results summary report states: "The FRA /FA scope involves analyzing each NuScale system that requires direct operator interaction."

The term "direct operator actions" is not clearly defined. It is unclear if the term refers to only to physical actions taken by operators (such as pressing a button or clicking a mouse) or if it includes non-physical operator actions (such as monitoring the plant and detecting automation failures).

Please clarify the scope of the FRA/FA process as it relates to this criterion and describe any clarifications that may be planned for the results summary report.



NuScale Response:

The phrase "direct operator action" is not used in RP-0316-17615-P, Rev. 0, the Human Factors Engineering Functional Requirements Analysis and Function Allocation Results Summary Report (FRA/FA RSR); instead, NuScale purposefully used the phrase "direct operator interaction." Interaction is defined as "an occasion when two or more people or things communicate with or react to each other" and, as such, the phrase is used to show that non-physical interactions, such as monitoring, are included. Direct operator interactions are the physical actions taken by the operators and also the act of monitoring to detect degradations and failures, and to assume manual control when necessary. Automation can assist the operator with notifications, cautions, or alarms if there is a degradation or failure of automation.

The FRA/FA RSR further describes "direct operator interaction" in the executive summary, Section 4.5, and Table 4-2.

The executive summary in the FRA/FA RSR states, in the third paragraph, that "The FA determines which tasks are performed by personnel, automation, or a combination of both. Each system function is analyzed to determine the tasks, how the task is performed (manual, automated, or both), the technical basis, and the role of the operator. The analysis and allocation results for the FRA/FA are captured in the FRA/FA database."

The role of the operator is described for each task (manual, automated, or combination) and captured in the function allocation tables for each system.

Section 4.5, Function Allocation Example, in the FRA/FA RSR states:

"For each system function, SMEs analyze the following for each major component/condition. NuScale uses a function allocation table to maintain the data and to assist with the analysis (Table 4-2). See Section 3.4 for automation criteria. {{

}}^{2(a),(c)}

As shown in the FRA/FA RSR, Table 4-2 below, for tasks provided in the {{

}}^{2(a),(c)}



Table 4-2. Partial Function Allocation Table for CVCS (See Appendix E, Appendix F, and Appendix G for complete tables for CVCS, DHRs and ECCS)

{{

}}^{2(a),(c)}

NuScale's position is that the term "direct operator interaction" refers not only to physical actions taken by operators (such as pressing a button or clicking a mouse), but also includes non-physical operator actions (such as monitoring the plant and detecting automation failures).

Impact on DCA:

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



RAIO-0418-59511

Enclosure 3:

Affidavit of Zackary W. Rad, AF-0418-59515

NuScale Power, LLC
AFFIDAVIT of Zackary W. Rad

I, Zackary W. Rad, state as follows:

1. I am the Director, Regulatory Affairs of NuScale Power, LLC (NuScale), and as such, I have been specifically delegated the function of reviewing the information described in this Affidavit that NuScale seeks to have withheld from public disclosure, and am authorized to apply for its withholding on behalf of NuScale.
2. I am knowledgeable of the criteria and procedures used by NuScale in designating information as a trade secret, privileged, or as confidential commercial or financial information. This request to withhold information from public disclosure is driven by one or more of the following:
 - a. The information requested to be withheld reveals distinguishing aspects of a process (or component, structure, tool, method, etc.) whose use by NuScale competitors, without a license from NuScale, would constitute a competitive economic disadvantage to NuScale.
 - b. The information requested to be withheld consists of supporting data, including test data, relative to a process (or component, structure, tool, method, etc.), and the application of the data secures a competitive economic advantage, as described more fully in paragraph 3 of this Affidavit.
 - c. Use by a competitor of the information requested to be withheld would reduce the competitor's expenditure of resources, or improve its competitive position, in the design, manufacture, shipment, installation, assurance of quality, or licensing of a similar product.
 - d. The information requested to be withheld reveals cost or price information, production capabilities, budget levels, or commercial strategies of NuScale.
 - e. The information requested to be withheld consists of patentable ideas.
3. Public disclosure of the information sought to be withheld is likely to cause substantial harm to NuScale's competitive position and foreclose or reduce the availability of profit-making opportunities. The accompanying Request for Additional Information response reveals distinguishing aspects about the methods by which NuScale develops its human-systems interface design.

NuScale has performed significant research and evaluation to develop a basis for this methods and has invested significant resources, including the expenditure of a considerable sum of money.

The precise financial value of the information is difficult to quantify, but it is a key element of the design basis for a NuScale plant and, therefore, has substantial value to NuScale.

If the information were disclosed to the public, NuScale's competitors would have access to the information without purchasing the right to use it or having been required to undertake a similar expenditure of resources. Such disclosure would constitute a misappropriation of NuScale's intellectual property, and would deprive NuScale of the opportunity to exercise its competitive advantage to seek an adequate return on its investment.

4. The information sought to be withheld is in the enclosed response to NRC Request for Additional Information RAI No. 391, eRAI 9370. The enclosure contains the designation "Proprietary" at the top of each page containing proprietary information. The information considered by NuScale to be proprietary is identified within double braces, "{{ }}" in the document.
5. The basis for proposing that the information be withheld is that NuScale treats the information as a trade secret, privileged, or as confidential commercial or financial information. NuScale relies upon the exemption from disclosure set forth in the Freedom of Information Act ("FOIA"), 5 USC § 552(b)(4), as well as exemptions applicable to the NRC under 10 CFR §§ 2.390(a)(4) and 9.17(a)(4).
6. Pursuant to the provisions set forth in 10 CFR § 2.390(b)(4), the following is provided for consideration by the Commission in determining whether the information sought to be withheld from public disclosure should be withheld:
 - a. The information sought to be withheld is owned and has been held in confidence by NuScale.
 - b. The information is of a sort customarily held in confidence by NuScale and, to the best of my knowledge and belief, consistently has been held in confidence by NuScale. The procedure for approval of external release of such information typically requires review by the staff manager, project manager, chief technology officer or other equivalent authority, or the manager of the cognizant marketing function (or his delegate), for technical content, competitive effect, and determination of the accuracy of the proprietary designation. Disclosures outside NuScale are limited to regulatory bodies, customers and potential customers and their agents, suppliers, licensees, and others with a legitimate need for the information, and then only in accordance with appropriate regulatory provisions or contractual agreements to maintain confidentiality.
 - c. The information is being transmitted to and received by the NRC in confidence.
 - d. No public disclosure of the information has been made, and it is not available in public sources. All disclosures to third parties, including any required transmittals to NRC, have been made, or must be made, pursuant to regulatory provisions or contractual agreements that provide for maintenance of the information in confidence.
 - e. Public disclosure of the information is likely to cause substantial harm to the competitive position of NuScale, taking into account the value of the information to NuScale, the amount of effort and money expended by NuScale in developing the information, and the difficulty others would have in acquiring or duplicating the information. The information sought to be withheld is part of NuScale's technology that provides NuScale with a competitive advantage over other firms in the industry. NuScale has invested significant human and financial capital in developing this technology and NuScale believes it would be difficult for others to duplicate the technology without access to the information sought to be withheld.

I declare under penalty of perjury that the foregoing is true and correct. Executed on 4/13/2018.



Zackary W. Rad