



September 26, 2018

Docket: PROJ0769

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. 9374 (eRAI No. 9374) on the NuScale Topical Report, "Non-Loss of Coolant Accident Analysis Methodology," TR-0516-49416, Revision 1

REFERENCES:

1. U.S. Nuclear Regulatory Commission, "Request for Additional Information No. 9374 (eRAI No. 9374)," dated May 09, 2018
2. NuScale Topical Report, "Non-Loss of Coolant Accident Analysis Methodology," TR-0516-49416, Revision 1, dated August 2017
3. NuScale Power, LLC Supplemental Response to "NRC Request for Additional Information No. 9374 (eRAI No. 9374)" dated July 9, 2018
4. NuScale Power, LLC Supplemental Response to "NRC Request for Additional Information No. 9374 (eRAI No. 9374)" dated July 24, 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. 9374:

- 15.00.02-22

A majority of the responses to RAI No. 9374, eRAI No. 9374 questions were previously provided in References 3 and 4. The response to question 15.00.02-23 will be provided by September 28, 2018.

Enclosure 1 is the proprietary version of the NuScale Response to NRC RAI No. 9374 (eRAI No. 9374). 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 Paul Infanger at 541-452-7351 or at pinfanger@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: Gregory Cranston, NRC, OWFN-8G9A
Samuel Lee, NRC, OWFN-8G9A
Rani Franovich, NRC, OWFN-8G9A

Enclosure 1: NuScale Response to NRC Request for Additional Information eRAI No. 9374, proprietary

Enclosure 2: NuScale Response to NRC Request for Additional Information eRAI No. 9374, nonproprietary

Enclosure 3: Affidavit of Zackary W. Rad, AF-0918-61954



Enclosure 1:

NuScale Response to NRC Request for Additional Information eRAI No. 9374, proprietary



Enclosure 2:

NuScale Response to NRC Request for Additional Information eRAI No. 9374, nonproprietary

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

eRAI No.: 9374

Date of RAI Issue: 05/09/2018

NRC Question No.: 15.00.02-22

TR-0516-49416-P, “Non-Loss-of-Coolant Accident [Non-LOCA] Analysis Methodology,” supports the conclusions in the NuScale Final Safety Analysis Report (FSAR), which under 10 CFR 52.47 must describe the facility, present the design bases and the limits on its operation, and present a safety analysis of the structures, systems, and components and of the facility as a whole. Regulatory Guide (RG) 1.203, “Transient and Accident Analysis Methods,” describes a process that the NRC staff considers acceptable for use in developing and assessing evaluation models (EMs) used to analyze transient and accident behavior, known as the evaluation model development and assessment process (EMDAP). Step 7 of the EMDAP discusses the identification and performance of separate effects tests (SETs) and integral effect tests (IETs) and states: “The effects of distortions should be evaluated in the context of the experimental objectives.”

TR-0516-49416-P, Section 5.3.2.3 describes the NRELAP5 model of the NIST facility and states:

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}}^{2(a)(c)} However, TR-0516-49416-P does not describe other model scaling aspects that are applicable and that could affect the conclusions of the assessment studies.

Information Requested:

Demonstrate that the nodalization scheme of the facility and NPM preserve the fluid and



structural time constants by providing representative time constants for NIST-1 and the NPM for the nodalization selected. Update TR-0516-49416-P as appropriate.

NuScale Response:

In the non-LOCA topical report TR-0516-49416, Table 5-8 compares the NRELAP5 nodalization schemes for the NuScale Power Module (NPM) decay heat removal system (DHRS) condenser tubes and the full length DHRS condenser tubes used in separate effects tests performed at the NuScale Integral System Test (NIST-1) facility. Table 1 provided in this response compares key geometric and material parameters between the NPM and NIST-1 full length DHRS condenser tubes. The fluid and structural characteristic times are further discussed below.

Fluid Characteristic Time

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

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

Structural Characteristic Time

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



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

Table 1. Comparison of NPM and NIST-1 Full Length DHRS Condenser Tube Geometry and Materials

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

Based on the comparisons summarized above, and the indicated insignificance of the difference in the fluid characteristic time between the NPM and NIST-1 full length DHRS condenser tubes, it is concluded that the difference in the NRELAP5 nodalization between the NPM and NIST-1 full length DHRS condenser tubes has an insignificant effect on the conclusions of the assessment calculations.

Impact on DCA:

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



RAIO-0918-61953

Enclosure 3:

Affidavit of Zackary W. Rad, AF-0918-61954

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 method by which NuScale develops its non-loss of coolant accident analysis methodology.

NuScale has performed significant research and evaluation to develop a basis for this method 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 No. 9374, eRAI 9374. 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 September 26, 2018.



Zackary W. Rad