

March 22, 2022

Docket No. 99902078

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

SUBJECT: NuScale Power, LLC Submittal of Proprietary Marking of NRC Request for Supplemental Information - completeness determination for NuScale Topical Report, TR-108601, Revision 0, "Statistical Subchannel Analysis Methodology."

REFERENCES:

1. NuScale Power, LLC Submittal of "NuScale Power, LLC Submittal of Supplemental Topical Report 'Statistical Subchannel Analysis Methodology, Supplement 1 to TR-0915-17564-P-A, Revision 2,' TR-108601, Revision 0," dated December 30, 2021 (ML21364A133)
2. Email from Bruce Bavol (NRC) to NuScale, "Completeness Determination for NuScale Topical Report, TR-108601, Revision 0, 'Statistical Subchannel Analysis Methodology'", dated March 3, 2022

In Reference 1, NuScale Power, LLC (NuScale) provided the Subchannel Analysis Methodology Topical Report. In Reference 2, NRC provided an advance copy of the request for supplemental information (RSI) as part of the completeness determination. The purpose of this letter is to provide the NuScale proprietary markings for the advance RSI supplied in Reference 1.

Enclosure 1 is the proprietary version of "NuScale Proprietary Marking of Subchannel RSI." 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 1 has also been determined to contain Export Controlled Information. This information must be protected from disclosure per the requirements of 10 CFR § 810. Enclosure 2 contains the nonproprietary version of the RSI.

This letter makes no regulatory commitments and no revisions to any existing regulatory commitments.

If you have any questions, please contact Rebecca Norris at 541-452-7539 or at RNorris@nuscalepower.com

Sincerely,



Mark W. Shaver
Manager, Licensing
NuScale Power, LLC

Distribution: Michael Dudek, NRC
Getachew Tesfaye, NRC
Bruce Bovol, NRC
Rebecca Patton, NRC

Enclosure 1: "NuScale Proprietary Marking of Subchannel RSI," proprietary version
Enclosure 2: "NuScale Proprietary Marking of Subchannel RSI," non-proprietary version
Enclosure 3: Affidavit of Mark W. Shaver AF-115669

Enclosure 1:

“NuScale Proprietary Marking of Subchannel RSI,” proprietary version

Enclosure 2:

“NuScale Proprietary Marking of Subchannel RSI,” non-proprietary version

Request for supplemental information - completeness determination for NuScale Topical Report, TR-108601, Revision 0, "Statistical Subchannel Analysis Methodology."

NuScale-TR-108601, Rev. 0, "Statistical Subchannel Analysis Methodology, Supplement 1 to TR-0915-17564-P-A, Revision 2," (SSAM) did not provide sufficient technical information to enable the NRC to complete its review and make an independent assessment regarding the acceptability of the updated methodology.

The SSAM did not provide an assessment of the impact to critical heat flux (CHF) calculations associated with the nodalization change proposed in the SSAM. Section 3.7.2 of SSAM, which is a supplement to the methodology provided in NuScale Topical Report (TR)-0915-17564, "Subchannel Analysis Methodology, Revision 2," (NSAM), identifies that axial nodalization impacts the prediction of CHF. Section 3.7.2 of NSAM also identifies that axial nodalization impacts the prediction of CHF. Accordingly, a change to the axial nodalization impacts the data reduction calculations used in the development of CHF correlations and associated limits. The change to the nodalization proposed in the SSAM did not contain a corresponding assessment to confirm the applicability of the updated SSAM axial nodalization, including the impact on the prediction of CHF and associated impact on the development of the CHF correlations and their limits. The technical information below describes this identified gap in more detail.

{{

}}^{2(a),(c),ECI} NuScale should demonstrate that the choice of nodalization will not result in a nonconservative estimate of local fluid conditions affecting the CHF correlation near the location of predicted MCHF.

If NuScale would like to apply a nodalization different from that used in their validation of the CHF correlation, as described in the SSAM, NuScale should either demonstrate that the new nodalization: (1) adequately represents the initial nodalization response, (2) demonstrates that the new nodalization results in a conservative estimate of CHF compared to the estimate which would be obtained with the initial nodalization, or (3) re-perform the validation with the new nodalization in order to quantify the uncertainty resulting from the new nodalization and update the SSAM with the demonstration. If NuScale would like to make use of the higher estimates of CHF (less conservative) resulting from changes to nodalization, they should re-perform their validation analysis with that same updated nodalization and confirm that the approved CHF limit remains bounding.

SSAM Nodalization Assessment:

An acceptable assessment approach which has been commonly used in the past (ADAMS no. ML20031C947) is to re-perform the CHF correlation validation using the new modeling options. This validation is used to confirm that the CHF statistical limit remains applicable even when the

new modeling options are applied. The new modeling options that are applied in SSAM are the changes to the entire axial nodalization proposed in SSAM section 3.7.2 for the basemodel. Similarly, other modeling options (node size changes) that are requested to be used as a part of SSAM could also use the same assessment approach of re-performing the CHF correlation validation for each specific modeling option (node size change).

Safety evaluation Section 3.3.2 (and subsections), for an acceptable assessment approach used in the past (ADAMS no. ML20031C947), describes the NRC review of the assessment approach of re-performing the CHF correlation validation using new modeling options. This assessment approach demonstrates, through the quantification of its error when compared with experimental data, that the initial CHF statistical limit remains applicable even when the new modeling options are applied.

Summary:

To be accepted for review, the SSAM should include an assessment of the impact to CHF calculations associated with the nodalization change proposed in the SSAM. The assessment, as described above, should confirm the applicability of the SSAM axial nodalization with respect to the development of CHF correlation associated limits, which would provide the NRC with sufficient information to complete its review.

Enclosure 3:

Affidavit of Mark W. Shaver AF-115669

NuScale Power, LLC

AFFIDAVIT of Mark W. Shaver

I, Mark W. Shaver, state as follows:

- (1) I am the Licensing Manager 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 Response reveals distinguishing aspects about the process by which NuScale develops its statistical subchannel analysis methodology.

NuScale has performed significant research and evaluation to develop a basis for this process 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 entitled "NuScale Proprietary Marking of Subchannel RSI." 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 3/22/2022.



Mark W. Shaver