

January 14, 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 Supplementary Information to Topical Report Entitled “Applicability Range Extension of NSP4 Critical Heat Flux Correlation: Supplement 1 to TR-0116-21012-P-A, Revision 1,” TR-107522, Revision 0

REFERENCES:

1. Letter from NuScale to the NRC, “NuScale Power, LLC Submittal of Supplemental Topical Report, ‘Applicability Range Extension of NSP4 Critical Heat Flux Correlation: Supplement 1 to TR-0116-21012-P-A, Revision 1,’ TR-107522, Revision 0,” dated November 5, 2021 (ML21309A754)
2. Email from Bruce Bavol (NRC) to Rebecca Norris (NuScale), “TR-107522 NuScale Supplement to CHF,” dated November 30, 2021

NuScale Power, LLC (NuScale) hereby provides supplementary information to support the review and approval of the topical report titled “Applicability Range Extension of NSP4 Critical Heat Flux Correlation: Supplement 1 to TR-0116-21012-P-A, Revision 1,” (TR-107522). The purpose of this submittal is to provide the data NRC requested via email on November 30, 2021 in order to complete the acceptance review. This information will be included as Appendix A to the referenced topical report.

Enclosure 1 contains the proprietary version of Appendix A to the topical report entitled “Applicability Range Extension of NSP4 Critical Heat Flux Correlation: Supplement 1 to TR-0116-21012-P-A, Revision 1,” TR-107522, Revision 0. 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 report.

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@nuscaldpower.com.

Sincerely,



Mark W. Shaver
Manager, Licensing
NuScale Power, LLC

Distribution: Michael Dudek, NRC
Getachew Tesfaye, NRC
Bruce Baval, NRC

- Enclosure 1: Appendix A to Topical Report Entitled "Applicability Range Extension of NSP4 Critical Heat Flux Correlation: Supplement 1 to TR-0116-21012-P-A, Revision 1," TR-107522-P, Revision 0, proprietary version
- Enclosure 2: Appendix A to Topical Report Entitled "Applicability Range Extension of NSP4 Critical Heat Flux Correlation: Supplement 1 to TR-0116-21012-P-A, Revision 1," TR-107522, Revision 0, nonproprietary version
- Enclosure 3: Affidavit of Mark W. Shaver, AF-112217

Enclosure 1:

Appendix A to Topical Report Entitled "Applicability Range Extension of NSP4 Critical Heat Flux Correlation: Supplement 1 to TR-0116-21012-P-A, Revision 1," TR-107522-P, Revision 0, proprietary version

Enclosure 2:

Appendix A to Topical Report Entitled "Applicability Range Extension of NSP4 Critical Heat Flux Correlation: Supplement 1 to TR-0116-21012-P-A, Revision 1," TR-107522-NP, Revision 0, nonproprietary version

Appendix A Local Conditions

This appendix provides tabulated parameters for Stern test series U1 and U2 evaluated with the NSP4 CHF correlation.

Definitions:

TEST	Test identifier	
POINT	Test point	
Z_{pred}	Elevation of CHF prediction from bottom of heated length, in.	
P	Pressure, psia	
G_{in}	Approximate inlet mass flux (test matrix value), Mlbm/hr-ft ²	
ΔT_{sub}	Approximate inlet subcooling (test matrix value), °F	
G	Local mass flux, Mlbm/hr-ft ²	
X	Local equilibrium quality	
Z_{boil}	Boiling length {{	}} ^{2(a),(c)}
{{		}} ^{2(a),(c)}
{{		}} ^{2(a),(c)}
$q''(Z_{pred})$	Predicted CHF, MBtu/hr-ft ²	
F-factor	Modified Tong F-factor	
P/M	Predicted-to-measured CHF ratio	

Table A-1 Local Conditions for NSP4 Prediction of Stern U1 and U2 Tests (Continued)

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}}2(a),(c),ECI



Enclosure 3:

Affidavit of Mark W. Shaver, AF-112217

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 appendix reveals distinguishing aspects about the process and method by which NuScale develops its critical heat flux correlations.

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

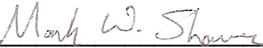
The precise financial value of the information is difficult to quantify, but it is a key element of the design basis for a NuScale plant and, therefore, has substantial value to NuScale.

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 appendix entitled "Appendix A to Topical Report Entitled 'Applicability Range Extension of NSP4 Critical Heat Flux Correlation: Supplement 1 to TR-0116-21012-P-A, Revision 1,' TR-107522-P, Revision 0." 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 January 14, 2021.



Mark W. Shaver