UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

June 21, 2022

MEMORANDUM TO: Michael I. Dudek, Chief
New Reactor Licensing Branch
Division of New and Renewed Licenses
Office of Nuclear Reactor Regulation

FROM: Bruce M. Bavol, Project Manager **/RA/**
New Reactor Licensing Branch
Division of New and Renewed Licenses
Office of Nuclear Reactor Regulation

SUBJECT: AUDIT PLAN FOR THE REGULATORY AUDIT OF NUSCALE POWER TOPICAL REPORT SUPPLEMENT ENTITLED "STATISTICAL SUBCHANNEL ANALYSIS METHODOLOGY, SUPPLEMENT 1 TO TR-0915-17564-P-A, REVISION 2," TR-108601, REVISION 1

By letter dated April 25, 2022, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML22115A222), NuScale requested U.S. Nuclear Regulatory Commission (NRC) review and approval of Topical Report (TR) Supplement Entitled "Statistical Subchannel Analysis Methodology, Supplement 1 to TR-0915-17564-P-A, Revision 2," TR-108601, Revision 1. The TR supplement seeks to define and justify a statistical based methodology for steady-state and transient subchannel analysis applications. The TR supplement provides the methodology for treatment of uncertainties in the NuScale statistical subchannel methodology. The purpose of the audit is to better understand the details and bases for the information provided in the TR.

The audit will take place at NRC headquarters via use of the NuScale electronic reading room. The audit entrance will be held on July 13, 2022, as mutually agreed. The audit exit will be held on September 13, 2022, based on the availability of NuScale and NRC staff. The contents of the audit plan are provided as an enclosure.

Docket No. 99902078

Enclosure:
Audit Plan

CONTACT: Bruce Bavol, NRR/DNRL
301-415-6715

SUBJECT: AUDIT PLAN FOR THE REGULATORY AUDIT OF NUSCALE POWER TOPICAL REPORT SUPPLEMENT ENTITLED “STATISTICAL SUBCHANNEL ANALYSIS METHODOLOGY, SUPPLEMENT 1 TO TR-0915-17564-P-A, REVISION 2,” TR-108601, REVISION 1, DATED: JUNE 21, 2022

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ADAMS Accession No: ML22168A086

OFFICE	DNRL/NRLB:PM	DNRL/NRLB:LA	DNRL/NRLB:PM
NAME	BBavol	SGreen	BBavol
DATE	06/16/2022	06/21/2022	06/21/2022

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UNITED STATES NUCLEAR REGULATORY COMMISSION

Audit Plan for The Regulatory Audit of NuScale Power Topical Report Supplement Entitled "Statistical Subchannel Analysis Methodology, Supplement 1 to TR-0915-17564-P-A, Revision 2," TR-108601, Revision 1

Docket NO. 99902078

AUDIT PLAN

APPLICANT: NuScale Power, LLC (NuScale)

CONTACTS: Thomas Griffith

DURATION: July 13, 2022 – September 13, 2022

LOCATION: **U.S. Nuclear Regulatory Commission (NRC) Headquarters (via NuScale's electronic reading room (eRR))**
One White Flint North
11545 Rockville Pike
Rockville, Maryland 20852-2738

NuScale
11333 Woodglen Drive, Suite 205
Rockville, Maryland 20852

NuScale
1100 NE Circle Blvd
Corvallis, OR 97330

AUDIT TEAM: Antonio Barrett, (Technical Lead) Office of Nuclear Reactor Regulation (NRR)
Bruce Bavol, (Project Manager) (NRR)
Erick Ball, (Technical Reviewer) (NRR)
Josh Kaizer, (Technical Reviewer) (NRR)
Claire Tran, (Technical Reviewer) (NRR)
Peter Lien, (Technical Reviewer) Office of Nuclear Regulatory Research (RES)

I. BACKGROUND AND OBJECTIVES

By letter dated April 25, 2022, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML22115A222), NuScale requested U.S. Nuclear Regulatory Commission (NRC) review and approval of Topical Report (TR) Supplement Entitled “Statistical Subchannel Analysis Methodology, Supplement 1 to TR-0915-17564-P-A, Revision 2,” TR-108601, Revision 1. The TR supplement seeks to define and justify a statistical based methodology for steady-state and transient subchannel analysis applications. The TR supplement provides the methodology for treatment of uncertainties in the NuScale statistical subchannel methodology. The purpose of the audit is to better understand the details and bases for the information provided in the TR supplement.

II. REGULATORY AUDIT BASIS

This regulatory audit is based on the following:

This regulatory audit is based on TR supplement entitled “Statistical Subchannel Analysis Methodology, Supplement 1 to TR-0915-17564-P-A, Revision 2,” TR-108601, Revision 1 (ML22115A222).

III. REGULATORY AUDIT SCOPE

The audit team will examine supporting documentation and calculations associated with the statistical treatment of uncertainties methodology presented in the subchannel TR supplement. Additional supplemental methodology updates will also be examined. The audit team will also meet with subject matter expert(s) to discuss details of the information supporting TR-108601, Revision 1.

IV. INFORMATION AND OTHER MATERIAL NECCSSARY FOR THE REGULATORY AUDIT

The NRC staff requests that following material and information be made available for audit to better inform the staff’s review of the proposed statistical treatment of uncertainties methodology in the TR supplement:

- Documents and related information that support changes or supplements to the TR Section 3.10, Radial Power Distribution, and subsections. Supporting information regarding the justification for the radial power distribution and associated assumptions described in the TR. Example implementation of the described methodology for Subsections 3.10.1, 3.10.3 and 3.10.6 as available.

- Documents and related information that support changes or supplements to TR Section 3.12, Statistical Method and Treatment of Uncertainties, and subsections. Supporting information regarding the justification for the recommended distributions for application of the uncertainties described in the TR.

- Documents and related information that support changes or supplements to TR Section 3.13, Bias and Uncertainty Application within Analysis Methodology, and subsections. Supporting documentation regarding the application of the uncertainties in the methodology and the iterative process described in the TR.

- Available examples of implementation of the integrated supplemental statistical methodology process.

V SPECIAL REQUESTS

The NRC staff requests that NuScale provide subject matter expert(s), if necessary, to discuss the details of the audit material requested in Section IV of this audit plan.

VI DELIVERABLES

The NRC audit team is expected to consist of the above listed individuals who are or have been involved in reviewing NuScale Power Topical Report Supplement Entitled “Statistical Subchannel Analysis Methodology, Supplement 1 to TR-0915-17564-P-A, Revision 2,” TR-108601, Revision 1. The NRC staff will conduct this audit in accordance with the guidance provided in LIC 111, “Regulatory Audits” (ML19226A274). The NRC staff acknowledges the proprietary nature of the information requested and will handle it appropriately throughout the audit.

The audit will initiate on July 13, 2022, and end September 13, 2022.

The staff will hold audit calls and/or meetings with NuScale as necessary to understand audit material. The NRC will inform NuScale of emerging information needs as well as documents that can be removed from eRR.

An audit report will be prepared and issued in accordance with NRR-LIC-111 within 90 days following the completion of the audit. If necessary, any circumstances related to the conductance of the audit will be communicated to, Bruce Bavol, at 301-415-6715 or Bruce.Bavol@nrc.gov.