



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

December 20, 2019

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

FROM: Marieliz Vera, Project Manager */RA/*
New Reactor Licensing Branch
Division of New and Renewed Licenses
Office of Nuclear Reactor Regulation

SUBJECT: U.S. NUCLEAR REGULATORY COMMISSION REPORT OF THE
REGULATORY FOLLOW-UP AUDIT PERFORMED BETWEEN
AUGUST 22, 2019, THROUGH SEPTEMBER 24, 2019,
REGARDING NUSCALE POWER, SEISMIC CATEGORY I
EQUIPMENT AND ENVIRONMENT QUALIFICATION OF
ELECTRICAL EQUIPMENT SPECIFICATIONS

On January 6, 2017, NuScale Power, LLC (NuScale) submitted a design certification (DC) application, for a Small Modular Reactor, to the U.S. Nuclear Regulatory Commission (NRC) (Agencywide Documents Access and Management System (ADAMS) Accession Number ML17013A229). The NRC staff started its detailed technical review of NuScale's DC application on March 15, 2017.

The NRC staff conducted an audit to confirm that the appropriate changes have been completed for the audit items that were assigned the status as "confirmatory" in the NRC staff's audit report, "U.S. Nuclear Regulatory Commission Staff report of regulatory audit for NuScale Power, LLC: Seismic Category I Equipment and Environment Qualification of Electrical Equipment Specifications," dated October 25, 2018 (ADAMS Accession No. ML18173A291). The audit was initiated on August 22, 2019, and concluded on September 24, 2019, in accordance with the audit plan in ADAMS (ML19225B594).

The purpose of the audit was to: (1) gain a better understanding of the NuScale design; (2) verify information; (3) identify information that may require docketing to support the basis of the licensing or regulatory decision; and (4) review related documentation and non-docketed information to evaluate conformance with regulatory guidance and compliance with NRC regulations.

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The NRC staff conducted the audit via access to NuScale's electronic reading room. The audit was conducted in accordance with the NRC Office of New Reactors (NRO) Office Instruction NRO-REG-108, "Regulatory Audits."

Docket No. 52-048

Enclosure:
Audit report

cc: NuScale DC ListServ

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 OF ELECTRICAL EQUIPMENT SPECIFICATIONS
 DATED: DECEMBER 20, 2019

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ADAMS Accession No.: ML19331A397***via email****NRR-106**

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U.S. NUCLEAR REGULATORY COMMISSION
STAFF'S REPORT OF THE REGULATORY AUDIT FOR
NUSCALE POWER, LLC: SEISMIC CATEGORY I EQUIPMENT AND ENVIRONMENT
QUALIFICATION OF ELECTRICAL EQUIPMENT SPECIFICATIONS

NRC AUDIT TEAM: _

Tuan Le, Office of New Reactors (NRO) Mechanical Engineer
Michael Breach, Mechanical Engineer, Lead Auditor
Marieliz Vera Amadiz, Project Manager
Sheila Ray, Sr. Electrical Engineer
Jorge Cintron-Rivera, Electrical Engineer

1.0 BACKGROUND

Title 10 of the *Code of Federal Regulations* (10 CFR), Part 52, Section 47, "Contents of applications; technical information," states that:

The application must contain a level of design information sufficient to enable the Commission to judge the applicant's proposed means of assuring that construction conforms to the design and to reach a final conclusion on all safety questions associated with the design before the certification is granted. The information submitted for a design certification must include performance requirements and design information sufficiently detailed to permit the preparation of acceptance and inspection requirements by the [U.S. Nuclear Regulatory Commission] NRC, and procurement specifications and construction and installation specifications by an applicant. The Commission will require, before design certification, that information normally contained in certain procurement specifications and construction and installation specifications be completed and available for audit if the information is necessary for the Commission to make its safety determination.

In conducting the review of the NuScale Power, LLC (NuScale) design certification (DC) application, the NRC staff requested that the applicant make available, design specifications for mechanical and electrical equipment. This audit confirms that the provisions of the NuScale design control document (DCD) will be properly implemented into the design qualification specifications of these components.

The NRC staff completed an audit as documented in "U.S. Nuclear Regulatory Commission Staff Report of Regulatory Audit for NuScale Power, LLC: Seismic Category I Equipment and Environment Qualification of Electrical Equipment Specifications" (Agencywide Documents and Access Management System (ADAMS) Accession No. ML18173A291). Subsequently, an audit was planned to confirm that the open items identified in "Plan for Regulatory Audit of NuScale Power, LLC, Seismic Category I Equipment and Environment Qualification of Electrical Equipment Specifications" (ADAMS Accession No. ML19225B594), were addressed and are considered to be closed.

The NRC staff audited the equipment design specifications for active mechanical and electrical equipment in support of its review against the following SRP sections:

- Section 3.10, “Seismic and Dynamic Qualification of Mechanical and Electrical Equipment.”

Additionally, the NRC staff performed an audit of the electrical equipment qualification in support of its review against the following SRP section:

- Section 3.11, “Environmental Qualification of Mechanical and Electrical Equipment.”

The NRC staff focused the review on the environmental qualification information for containment electrical penetration assemblies (EPAs), pressurizer heater bundles, and containment isolation valves and actuated valves.

The NRC staff provided NuScale with the audit plan documented in ADAMS under Accession No. ML19225B594. The NRC staff followed the NRO Office Instruction, NRO-REG-108 (Revision 0), “Regulatory Audits,” in performing the audit of the NuScale design specifications.

The NRC staff conducted the audit at the NRC office in Rockville, Maryland, from August 22, 2019, through September 24, 2019. The NRC staff members were from the Mechanical Engineering Branch (MEB) of the Division of Engineering and Infrastructure in NRO and the Mechanical Engineering and Inservice Testing Branch, the Electrical Engineering New Reactor and License Renewal Branch, and the Electrical Engineering Operating Reactor and License Renewal Branch of the Division of Engineering in the Office of Nuclear Reactor Regulation (NRR).

2.0 AUDIT RESULTS

The NRC staff found that all confirmatory items identified under Accession No. ML18173A291, were addressed and that the items could be closed.