

June 15, 2017

MEMORANDUM TO: Samuel Lee, Chief
Licensing Branch 1
Division of New Reactor Licensing
Office of New Reactors

FROM: Omid Tabatabai, Senior Project Manager */RA/*
Licensing Branch 1
Division of New Reactor Licensing
Office of New Reactors

SUBJECT: AUDIT PLAN FOR THE REGULATORY AUDIT OF NUSCALE POWER,
LLC'S ENGINEERING REPORT, ER-D000-4318, "SAFETY
CLASSIFICATION ASSESSMENT OF NUSCALE PLANT ELECTRICAL
SYSTEMS" (DOCKET NO. 52-048)

NuScale Power, LLC (NuScale) submitted by a letter dated December 31, 2016, to the U.S. Nuclear Regulatory Commission (NRC) a Design Control Document for its Design Certification (DC) application of the NuScale design, accessible by Agencywide Documents Access and Management System Accession No. ML17013A229. The NRC staff started its detailed technical review of NuScale's DC application on March 27, 2017.

The purpose of this one-day regulatory audit is for the NRC staff to review NuScale's non-docketed information and hold discussions with NuScale staff to better understand (1) NuScale's approach on the safety classification of electrical systems, (2) emergency lighting capability, and (3) the design, qualification, and quality assurance provisions that are applied to the direct current (DC) system.

The audit will take place at NuScale's Rockville Office and/or online via NuScale electronic reading room. The audit is currently scheduled for June 28, 2017. The audit plan is provided in Enclosure 1.

Docket No. 52-048

Enclosure:
As stated

cc w/encl.: DC NuScale Power LLC Listserv

CONTACT: Omid Tabatabai, NRO/DNRL
301-415-6616

AUDIT PLAN FOR THE REGULATORY AUDIT OF NUSCALE POWER, LLC'S ENGINEERING REPORT, ER-D000-4318, "SAFETY CLASSIFICATION ASSESSMENT OF NUSCALE PLANT ELECTRICAL SYSTEMS" (DOCKET NO. 52-048) DATED JUNE 15, 2017

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***via email**

NRO-002

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NAME	OTabatabai	MBrown	TMartinez-Navedo	OTabatabai (sign)
DATE	06/13/2017	06/13/2017	06/13/2017	6/15/2017

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**U.S. NUCLEAR REGULATORY COMMISSION
AUDIT PLAN FOR THE REGULATORY AUDIT OF NUSCALE POWER, LLC'S ENGINEERING
REPORT, ER-D000-4318, "SAFETY CLASSIFICATION ASSESSMENT OF NUSCALE PLANT
ELECTRICAL SYSTEMS," DOCKET NO. 52-048**

AUDIT PLAN

Applicant: NuScale Power, LLC

Location: U. S. Nuclear Regulatory Commission (NRC) Headquarters via NuScale's electronic reading room (eRR) and at NuScale's Local Office in Rockville, Maryland, as necessary

Reviewers: Swagata Som (Audit Team Leader)
Sheila Ray
Bob Fitzpatrick
Vijay Goel
Fanta Sacko
Jorge Cintron

Project Manager: Omid Tabatabai

NuScale Contacts: Darrell Gardner, Steve Mirsky

Audit Dates/Times: June 28, 2017
8:30 a.m. - 4:00 p.m.

Background and Regulatory Basis:

The NRC staff reviewed the NuScale Power, LLC (NuScale) Topical Report (TR) TR-0815-16497, "Safety Classification of Passive Nuclear Power Plant Electrical Systems."

The Final Safety Analysis Report (FSAR) Tier 2, Section 8.1.1, "Utility Power Grid and Offsite Power System Description," states that the NuScale Power Plant is designed with passive, safety-related systems for safe shutdown, core and spent fuel assembly cooling, containment isolation and integrity, and reactor coolant pressure boundary integrity. Additionally, FSAR Tier 2 Section 8.1.3, "Safety-Related Loads," states that the NuScale design includes no safety-related loads and does not rely on electrical power or operator action to achieve and maintain safe shutdown. Thus, there are no Class 1E power sources in the NuScale design.

Document ER-D000-4318, "Safety Classification Assessment of NuScale Plant Electrical Systems," discusses how the NuScale plant meets the "conditions of applicability" described in the TR and the determination of the appropriate safety classification of NuScale plant electrical supply systems. Furthermore, this document discusses the non-reliance of electrical power for safe shutdown, core cooling, containment isolation and integrity.

The information to be reviewed is intended to provide direct support for the safety conclusions that apply to the NuScale Design Certification Application (DCA) under Title 10 *Code of Federal Regulations* (CFR), Part 52. Specifically, the information to be reviewed will provide support to General Design Criteria 17 and 18 exemptions requested by NuScale. The information to be assessed is intended to augment the NRC staff's understanding and verification. Furthermore, this information will be referenced in the NRC staff's final safety evaluation report (FSER) on the methodology and assumptions of the NuScale DCA, regarding how the electrical systems meet the applicable regulations.

Audit Purpose:

The purpose of this one-day regulatory audit is for the NRC staff to (1) review NuScale's engineering report, ER-D000-4318, "Safety Classification Assessment of NuScale Plant Electrical Systems," and (2) hold discussions with NuScale staff related to specific areas of NuScale FSAR, Chapter 8, "Electric Power," sections 8.1, 8.2, 8.3.1, 8.3.2, and 8.4, and the applicant's methodology, to determine whether Chapter 8 of the NuScale DCA meets the applicable regulations. Specifically,

1. The NRC staff seeks clarification of NuScale's approach on the safety classification of electrical systems.
2. The NRC staff seeks clarification on the emergency lighting capability.
3. The NRC staff seeks clarification on the design, qualification, and quality assurance provisions that are applied to the DC system (i.e. EDSS).

The NRC staff will conduct this audit in accordance with the guidance provided in NRO-REG-108, "Regulatory Audits."

Information and Documents Necessary for the Audit:

1. Document ER-D000-4318, "Safety Classification Assessment of NuScale Plant Electrical Systems."
2. An overview and presentation, to the NRC staff, of the document(s) by a knowledgeable NuScale personnel.

Audit Team Assignments:

The audit team is comprised of the following NRC staff. These individuals will review the relevant documents that are related to the audit and will be available at the time of the audit:

- Tania Martinez Navedo, Electrical Engineering Branch, Acting Chief
- Omid Tabatabai, Licensing Branch 1, Senior Project Manager
- Swagata Som, (Audit Team Leader)
- Sheila Ray
- Bob Fitzpatrick
- Vijay Goel
- Fanta Sacko

- Jorge Cintron

Audit Activities and Deliverables:

The NRC audit team review will cover the technical areas identified previously in this audit plan. The NRC Project Manager will coordinate with NuScale in advance of audit activities to verify specific documents and identify any changes to the audit schedule and requested documents.

The NRC staff acknowledges the proprietary and/or sensitive nature of the information requested and it will be handled appropriately throughout the audit. While the NRC staff will take notes, the NRC staff will not remove hard copies or electronic files from the audit site(s).

At the completion of the audit, the audit team will issue an audit summary within 90 days that will be declared and entered as an official agency record in the NRC's Agencywide Documents Access and Management System (ADAMS) records management system, in accordance with NRO-REG-108. The audit outcome may be used to assist the NRC staff in the issuance of request for additional information for the licensing review of the NuScale DCD and to identify any additional information to be submitted on the docket in support of the NRC staff's preparation of the FSER.