

June 14, 2016

MEMORANDUM TO: Mark Tonacci, 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 NUSCALE POWER, LLC PRE-APPLICATION
ACTIVITIES ASSOCIATED WITH NUSCALE'S HIGHLY INTEGRATED
PROTECTION SYSTEM PLATFORM (PROJ0769)

In December 2015, NuScale Power, LLC, (NuScale), submitted a topical report entitled, "Highly Integrated Protection System (HIPS) Platform," for the NRC staff's review and approval. Since then, the NRC and NuScale staffs have held several meetings to discuss regulatory and technical matters related to the topical report. The NRC staff has determined that an audit of the topical report's supporting documentation, including NuScale's newly developed HIPS platform prototype, will provide the NRC staff with a more in-depth understanding of the design. The NRC staff's objective from conducting this audit is to confirm that the HIPS platform prototype design documents are consistent with the descriptions of the platform in the topical report and the fundamental instrumentation and control design principles.

The audit will take place at NuScale's office at 11333 Woodglen Dr., Suite 205, Rockville, Maryland, 20852. The audit is currently scheduled to start on July 6, 2016. The audit start date and duration are subject to change depending on the availability of the documents that the staff needs to review. The audit plan and agenda is provided in Enclosure 1.

Consistent with the Office of New Reactor's procedure this audit will be closed to public observation similar to the conduct of an inspection. The audit will be conducted by a team of NRC staff members who are knowledgeable in various aspects of digital instrumentation and control. Based on the identified scope, it is expected that the team will spend two consecutive days at the NuScale office in Rockville, Maryland, to conduct the audit. The NRC staff resource expenditure is estimated to be less than 120 person-hours including preparation and documentation.

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

M. Tonacci

- 2 -

The audit team leader will communicate specific support requests (e.g., documents to be reviewed or interviews to be scheduled).

Project No.: PROJ0769

Enclosure:
As stated

cc: DC NuScale Power LLC Listserv

M. Tonacci

- 2 -

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AUDIT PLAN AND AGENDA

Applicant: NuScale Power, LLC

Location: NuScale Office
11333 Woodglen Drive, Suite 205
Rockville, MD 20852

Reviewers: Luis Betancourt
Dinesh Taneja
Joseph Ashcraft

Project Manager: Omid Tabatabai

NuScale Contacts: Steve Pope
Steve Mirsky

Audit Dates/Times: July 06, 2016, 8:30 a.m. - 5:00 p.m.
July 07, 2016, 8:30 a.m. - 5:00 p.m.

Audit Objective: The U.S. Nuclear Regulatory Commission (NRC) staff's objective from conducting this audit is to confirm that the Highly Integrated Protection System (HIPS) platform prototype design documents are consistent with the descriptions of the HIPS platform in the topical report and the fundamental design principles of independence, redundancy, predictability, and reliability, as well as defense-in-depth. This audit will also assist the staff to ensure HIPS platform conforms to applicable regulations and standards such as Regulatory Guide (RG) 1.75, "Criteria for Independence of Electrical Systems", and 10 CFR 50.55a(h)(3), which requires compliance with Institute of Electrical and Electronics Engineers (IEEE) Std 603-1991, "Criteria for Safety Systems for Nuclear Power Generating Stations".

Audit Scope:

The following documents are requested to be made available to the NRC staff for review during the audit:

1. Design specifications and design reports for the HIPS Platform Prototype, e.g.,:
 - HIPS Modules Design Specifications; and
 - Field Programmable Gate Array (FPGA) Documentation and Design Specifications.
2. HIPS Platform Prototype Requirements Specification.
3. HIPS Platform Prototype Requirements Traceability Matrix.
4. HIPS Platform Prototype Functional Block Diagrams.

This is not a comprehensive list of documents the staff will be reviewing as part of the audit, as there may be a need to review additional design documents supporting the basis for these documents.

The staff will conduct this audit in accordance with the guidance provided in NRO-REG-108, "Regulatory Audits" (Reference 3).

Audit Team:

Staff from the Instrumentation, Controls, and Electronics Engineering Branch (ICE) in Division of Engineering Infrastructure and Advanced Reactors (DEIA) will comprise the audit team.

Name	Title and Organization	Primary Review Responsibility
Luis Betancourt (Team Leader)	Electronics Engineer, ICE	I&C Documentation; FPGA
Dinesh Taneja	Senior Electronics Engineer, ICE	I&C Documentation; FPGA
Joseph Ashcraft	Electronics Engineer, ICE	I&C Documentation; FPGA
David Curtis	Chief, DEIA/ICE	Technical Supervision
Omid Tabatabai	Senior Project Manager (PM)	Licensing PM

Special Requests:

- Appropriate handling and protection of proprietary information shall be acknowledged and observed throughout the audit.
- No security-related information is provided.
- NuScale personnel to address questions on any of the in-scope documents.

Schedule and Deliverables:

An audit report will be prepared and issued in accordance with NRO-REG-108 within 90 days following the completion of the audit.

References:

1. Topical Report 1015-18653, "Highly Integrated Protection System Platform" Revision 0, NuScale Power, LLC, Ltd., December 2015 (ADAMS Accession No. ML15363A114).
2. NRC letter to NuScale, "Acceptance Letter for the Review of Topical Report 1015-18653, "Highly Integrated Protection System Platform" Revision 0, (PROJ. 0769)," February 19, 2016 (ADAMS Accession No. ML16048A135).
3. NRO-REG-108, "Regulatory Audits," ADAMS Accession Number ML081910260, April 2, 2009.