

May 11, 2015

MEMORANDUM TO: Mark Tonacci, Chief  
Small Modular Reactor Licensing Branch  
Division of Advanced Reactors and Rulemaking  
Office of New Reactors

FROM: Gregory Cranston, Senior Project Manager */RA/*  
Small Modular Reactor Licensing Branch  
Division of Advanced Reactors and Rulemaking  
Office of New Reactors

SUBJECT: SUMMARY OF MAY 6, 2015, PUBLIC AND CLOSED MEETING  
WITH THE U.S. NUCLEAR REGULATORY COMMISSION  
STAFF AND NUSCALE POWER, LLC, TO DISCUSS  
NUSCALE'S INTEGRATED PROTECTION SYSTEM  
ARCHITECTURE FOR NUSCALE SMALL MODULAR REACTOR  
(TAC No. RN6110)

On May 6, 2015, the staff from the U.S. Nuclear Regulatory Commission (NRC) and representatives from NuScale Power, LLC (NuScale) held a Category 1 public meeting and a closed meeting at the NRC headquarters, located at Three White Flint North, 11601 Landsdown Street, North Bethesda, MD 20852 and at the NuScale Rockville office, located at 11333 Woodglen Dr., Suite 205, Rockville, MD 20852, respectively.

During this public meeting, NuScale personnel presented to the Staff the approach that NuScale will be using for their integrated protection system and associated architecture for the NuScale small modular reactor (SMR) instrumentation and controls (I&C) design.

NuScale presented their hybrid digital and analog system architecture. The key design attributes that are being used for their I&C design include independence, redundancy, simplicity, diversity, and testing and diagnostic capabilities. These design attributes are generally consistent with the staff's perspectives for SMRs, and the staff and NuScale have discussed these positions in previous pre-application interactions. The NuScale safety I&C design is a hybrid of analog and field-programmable gate array (FPGA) technology with all manual controls employing analog technology only. They stated that their design is addressing all safety issues without reliance on detailed platform details (platform-neutral).

CONTACT: Gregory Cranston, NRO/DARR  
(301) 415-0546

The NRC staff emphasized the effectiveness of functional diversity as compared with other diversity attributes, which NuScale stated was one of their primary goals in their design. The NuScale design employs the built-in diversity approach to address the potential software common cause failure issue, thus eliminating the need for a diverse actuation system.

Based on the discussions during the meeting and the NRC staff's feedback at the end of the meeting, the staff and NuScale agreed to have a follow-up meeting in July 2015.

The meeting agenda and meeting attendees list are included in Enclosure 1. The public meeting notice is available in the NRC Agencywide Documents Access and Management System (ADAMS) with accession number ML15107A350. The closed meeting notice is available in the ADAMS (accession number ML15107A418). The public presentation slides are available in ADAMS (accession number ML15125A017). There were no additional presentation slides for the closed session. Please direct any inquiries to Gregory Cranston at (301) 415-0546, or email at [Gregory.Cranston@nrc.gov](mailto:Gregory.Cranston@nrc.gov).

ADAMS is the system that provides text and image files of NRC's public documents and can be accessed at the NRC's Electronic Reading Room at <http://www.nrc.gov/reading-rm/adams.html>. If you do not have access to ADAMS or have problems accessing the documents located in ADAMS, contact the NRC Public Document Room staff at (800) 397-4209, (301) 415-4737, or [pdr@nrc.gov](mailto:pdr@nrc.gov).

Project No.: PROJ0769

Enclosure:  
Agendas and Lists of Attendees

cc: DC NuScale Power LLC Mailing ListServ

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**DISTRIBUTION:**

PUBLIC  
NuScale Listserv  
MTonacci, NRO

**ADAMS ACCESSION No.: ML15131A151**

**NRC-001**

<b>OFFICE</b>	PM:NRO/DARR/SMRLB	PM:NRO/DARR/SMRLB
<b>NAME</b>	GCranston	OTabatabai
<b>DATE</b>	05/11/2015	05/11/2015

**OFFICIAL RECORD COPY**

NuScale Power Category 1 Public Meeting with the U.S. Nuclear Regulatory Commission on  
Integrated Protection System Architecture for NuScale

Three White Flint North, Room 3WFN 1-C05

May 6, 2015

9:00 am – 11:30 am

**AGENDA**

<b>Time</b>	<b>Topic</b>
9:00 – 9:05 am	Introductions/Logistics
9:05 – 10:15 am	Integrated Protection System Architecture
10:15 - 10:30 am	Break
10:30 – 11:30 am	Integrated Protection System Architecture

**ATTENDANCE LIST**

<b>NAME</b>	<b>AFFILIATION</b>	<b>NAME</b>	<b>AFFILIATION</b>
Cranston, Greg	NRC	Clarkson, Gregg	NuScale Power
Tappert, John	NRC	Petrilla, John	NuScale Power
Jackson, Terry	NRC	Pope, Steve	NuScale Power
Jung, Ian	NRC	Afshar, Cyrus	NuScale Power
Ashcraft, Joe	NRC	Pottorf, Jason	NuScale Power
Taneja, Dinesh	NRC	Arnholt, Brian	NuScale Power
Zhao, Jack	NRC	Koski, Jeff	NuScale Power
Chalk, Dan	DOE	Troy, Patrick	Lockheed Martin

Enclosure

NuScale Power Closed Meeting with the U.S. Nuclear Regulatory Commission on  
Integrated Protection System Architecture for NuScale

NuScale Rockville Office  
11333 Woodglen Dr., Suite 205  
Rockville, MD 20852  
May 6, 2015  
1:00 pm – 4:00 am

**AGENDA**

<b>Time</b>	<b>Topic</b>
1:00 – 1:05 pm	Introductions/Logistics
1:05 – 2:15 pm	Integrated Protection System Architecture
2:15 - 2:30 pm	Break
2:30 – 4:00 pm	Integrated Protection System Architecture

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Cranston, Greg	NRC	Clarkson, Gregg	NuScale Power
Jung, Ian	NRC	McGee, Ryan	NuScale Power
Jackson, Terry	NRC	Pope, Steve	NuScale Power
Zhao, Jack	NRC	Afshar, Cyrus	NuScale Power
Ashcraft, Joe	NRC	Pottorf, Jason	NuScale Power
Taneja, Dinesh	NRC	Arnholt, Brian	NuScale Power
		Koski, Jeff	NuScale Power
		Ayala, Rufino	NuScale Power
		Vitello, Chris	NuScale Power

Enclosure