

January 14, 2009

MEMORANDUM TO: William D. Reckley, Chief
Rulemaking, Guidance and Advanced Reactors Branch
Division of New Reactor Licensing
Office of New Reactors

FROM: Thomas J. Kenyon, Senior Project Manager */RA/*
Rulemaking, Guidance and Advanced Reactors Branch
Division of New Reactor Licensing
Office of New Reactors

SUBJECT: SUMMARY OF PRE-APPLICATION MEETING WITH NUSCALE
POWER INC. TO DISCUSS CODES AND ANALYSIS EFFORTS ON
THE NUSCALE REACTOR DESIGN

On November 20, 2008, staff from the U.S. Nuclear Regulatory Commission (NRC) met with representatives from NuScale Power, Inc. (NuScale) to discuss codes and analysis efforts on the NuScale reactor design. Enclosures 1 and 2 are the meeting agenda and attendees, respectively.

The meeting opened with a presentation on the NuScale Power reactor design that was open to the public. NuScale's slide presentation can be obtained from the Commission's Public Document Room, at One White Flint North, 11555 Rockville Pike (first floor), Rockville, MD. It is also available electronically from the Public Electronic Reading Room found on the Internet at the following web address: <http://www.nrc.gov/reading-rm.html>. From this site, the public can gain access to the NRC's Agencywide Document Access and Management System (ADAMS), which provides text and image files of NRC's public documents in the Publicly Available Records component of ADAMS. The ADAMS accession number for the presentation is ML083460391.

NuScale stated that the NuScale Power reactor is a small light-water reactor in which each reactor module employs natural circulation to develop the heat source for producing about 45 MWe using a turbine-generator for each module. The design consists of a self-contained assembly with the reactor core and steam generators located in a common containment vessel that is immersed in a large pool of water. The pool could be designed to accommodate multiple power generating modules (the example shown in NuScale's slide presentation was for 12 modules, but that number can be expanded or reduced). The pre-applicant then briefly described other unique features of the facility, such as a 90 day capacity in the pool to handle the decay heat of a single module.

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The meeting was then closed to the public in order for NuScale to discuss the proprietary aspects of their code. The ADAMS accession number for the non-proprietary version of the presentation is ML083500489, and the proprietary version of the presentation (not publicly available) is ML083500502.

NuScale discussed their core design objectives, and their approaches to fuel performance analysis, loss-of-coolant-accident (LOCA) analysis, non-LOCA analysis, and containment analysis. NuScale indicated that they were using well-established computer codes that are being adapted to address the unique features of the design. The pre-applicant was using the data obtained during testing of the Multi-Application Small Light-Water Reactor (an earlier, similar design) to inform the NuScale testing program, but understood that they needed to develop an integrated test program specific to the NuScale design. The pre-applicant stated that it is planning on submitting licensing Topical Reports to address the details of the code adaptations. The staff reminded NuScale that the code analyses must be supported by an appropriate amount of testing to validate the analyses results.

Potential future discussions that were identified during the meeting included discussions on fuel testing, critical heat flux (CHF) correlation prediction, and specific issues concerning the model proposed for thermal-hydraulic analysis. At the close of the meeting, it was agreed that additional interactions between NuScale and the NRC may be appropriate to discuss questions arising from the pre-applicant's analyses efforts.

Enclosures:
As stated

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**Meeting Agenda
Pre-Application Meeting on Codes
NuScale Reactor Design**

8:30 a.m. – 2:30 p.m.
Thursday, November 20, 2008
NRC Headquarters (Room T-08 A01)

<u>TIME</u>	<u>TOPIC</u>	<u>LEAD</u>
<i><u>The following discussions were open to the public.</u></i>		
8:30 – 8:40 a.m.	Introduction and opening remarks	NRC/NuScale
8:40 – 8:50 a.m.	Introduction to NuScale	NuScale
8:50 – 9:15 a.m.	NuScale Plant Design Overview	NuScale
9:15 – 9:45 a.m.	Summary of Codes and Methods	NuScale
9:45 – 10:00 a.m.	Opportunity for Public Comment	Public
10:00 – 10:15 a.m.	Break	
<i><u>The following session were closed to the public because proprietary information was discussed.</u></i>		
10:15 – 10:45 a.m.	Core Design	NuScale
10:45 – 11:15 a.m.	Fuel Performance Analysis Methods	NuScale
11:15 – 12:00 p.m.	Non-LOCA Methods	NuScale
12:00 - 1:00 p.m.	Lunch	
1:00 – 1:45 p.m.	LOCA Methods	NuScale
1:45 – 2:15 p.m.	Containment Performance Analysis Methods	NuScale
2:15 – 2:30 p.m.	Closing Statements	
2:30 p.m.	Adjourn	

Meeting Attendees
Pre-Application Meeting on Codes
NuScale Reactor Design
November 20, 2008

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(Revised 11/14/2008)

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