

June 30, 2016

Docket: PROJ0769

U.S. Nuclear Regulatory Commission  
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**SUBJECT:** NuScale Power, LLC Final Schedule for Topical Report Submittals  
(NRC Project No. 0769)

- REFERENCES:**
1. Letter from NuScale Power, LLC to U.S. Nuclear Regulatory Commission, "Projected Schedule For Topical Report Submittals in Advance of Design Certification Application," LO-1014-9056, dated October 20, 2014 (ML14293A862).
  2. Letter from NuScale Power, LLC to U.S. Nuclear Regulatory Commission, "NuScale Power LLC Final Schedule for Topical Report Submittals," LO-0116-21371, dated January 28, 2016 (ML16029A315).
  3. Letter from NuScale Power, LLC to U.S. Nuclear Regulatory Commission, "NuScale Power, LLC Request for Suspension of Acceptance Review of TR-0116-20825, 'Applicability of AREVA Fuel Methodology for NuScale Design,' Revision 0," LO-0616-49551, dated June 3, 2016 (ML16155A449).

In a letter dated October 20, 2014, NuScale Power, LLC (NuScale) provided a schedule for topical report submittals to the NRC to support NRC's resource planning efforts and to aid in the timely review of the NuScale Design Certification Application (DCA) (Reference 1). The letter also indicated NuScale's intention to provide periodic updates to the schedule as further information became available. In a letter dated January 28, 2016, NuScale provided an update to the topical report submittal schedule (Reference 2). Subsequently, NuScale made changes to the scope and schedule of the planned topical report submittals. The purpose of this letter is to update the plan for topical report submittals. This plan continues to support the NuScale DCA submittal schedule.

Attachment 1 provides the updated list of topical reports, an abstract, the specific approval being sought, and the submittal date. The updated list includes two new topical reports. As discussed in a letter dated June 3, 2016, NuScale intends to submit a separate report addressing the applicability of AREVA seismic methodology to the NuScale fuel design (Reference 3). NuScale also intends to submit a standalone topical report on the NuScale rod ejection analysis methodology, instead of including this methodology in the non-LOCA methodology topical report. The updated submittal dates reflect insights gained from pre-application meetings, constructive feedback, and acceptance review input provided to NuScale by the NRC staff.

This letter contains no regulatory commitments or changes to any existing commitments.

Please contact Jennie Wike at 541-360-0539 or at [jwike@nuscalepower.com](mailto:jwike@nuscalepower.com) if you have any questions.

Sincerely,



Thomas A. Bergman  
Vice President, Regulatory Affairs  
NuScale Power, LLC

Attachment 1: "Final Schedule for Topical Report Submittals"

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**Attachment 1  
Final Schedule for Topical Report Submittals**

The purpose of Attachment 1 is to provide NuScale's planned topical report submittals along with the approval being sought for each report. NuScale believes the NRC's normal process for reviewing topical reports meets NuScale's needs, and none of the topical reports need formal NRC approval in advance of the DCA.

No.	Report Title	Abstract	Specific Approval Being Sought	NRC Submittal Date
1	Applicability of the AREVA Fuel Seismic Methodology to NuScale Design	This topical report demonstrates the applicability of AREVA methods for evaluation of fuel assemblies to externally applied forces (i.e., seismic and LOCA excitations) for the NuScale fuel design. This report demonstrates that the AREVA topical report and associated methods are directly applicable to the NuScale Small Modular Reactor (SMR).	The AREVA topical report for use in the evaluation of NuScale fuel assembly structural response to externally applied forces.	September 2016
2	Nuclear Analysis Codes and Methods Qualification	This topical report describes and discusses application of nuclear analysis codes and methodologies to determine code biases and bias uncertainty. Details of the benchmarking performed, implementation of the codes and methodologies and the biases and bias uncertainty for the NuScale design will be provided in this report.	The nuclear analysis codes and methodologies for the calculations that assess safety of the nuclear design and analysis of the core.	August 2016
3	Evaluation Methodology for Stability Analysis of the NuScale Power Module	This topical report presents a comprehensive study of the thermal hydraulic stability of the NuScale reactor as a basis for licensing and compliance with the applicable regulations. Stability phenomena are considered from a fundamental level without assumptions pertaining to similarities or differences from other nuclear systems, yet with full cognizance of the rich historical background and licensing experience particularly with Boiling Water Reactors (BWR). Computational methods were developed for the analysis of the limiting instability modes for the NuScale reactor design during steady state normal operation and anticipated transients. The methodology selected for stability protection that resulted from the study is the region exclusion type rather than the detect and suppress type. The operational domain identified with potential instability is characterized with riser boiling, which is already excluded by the reactor protection system for considerations other than stability.	The methods applied for NuScale's analysis of module stability, NuScale's conclusion that the NuScale module is stable in the region identified with single phase flow in the riser, and the methodology of stability protection by regional exclusion.	July 2016
4	LOCA Evaluation Model	This topical report describes the loss of coolant accident (LOCA) Evaluation Model (EM), LOCA methodology, and will describe the NRELAP5 code modifications specific to NuScale. The EM will be developed following the Evaluation Model Development and Assessment Process (EMDAP) of Regulatory Guide (RG) 1.203. The process of assessing and validating the NRELAP5 code for LOCA will be described, from the development of an independent PIRT through code assessment and validation. The topical report will describe the LOCA methodology and will include a sample calculation that shows the application of the LOCA methodology to the NuScale Plant Module and will demonstrate that analyses performed with the EM for the NuScale SMR satisfy the requirements of 10 CFR 50, Appendix K, "ECCS Evaluation Models".	The methodologies and description of the specific models and codes to analyze LOCA accidents.	August 2016
5	Subchannel Analysis Methodology	This topical report describes the steady state and transient subchannel analysis of local fluid conditions in the reactor core, solving mass, momentum and energy conservation equations. The report will provide a detailed description of the methodology to perform subchannel analysis and an applicability assessment of the models, correlations and features in the VIPRE-01 code for the NuScale reactor design. Validation of the VIPRE-01 code against applicable test data and code-to-code benchmarking will be provided.	The thermal-hydraulic methodologies, including the applicability of the codes and correlations used and implemented.	September 2016
6	Non-LOCA Methodologies	This topical report will describe the codes and methods used for NuScale non-LOCA transient analysis of Design Control Document (DCD) Chapter 15 design basis events. The report will describe design basis events for which the codes and methods are applied, the computer codes used and their validation bases, the non-LOCA transient analysis process, event-specific methodology, and example representative transient analysis results.	The codes and associated analysis methodologies for transient analysis of NuScale non-LOCA DCD Chapter 15 design basis events.	October 2016
7	Critical Heat Flux Correlation	This topical report describes the development of a critical heat flux correlation for analyzing the thermal performance of the NuScale Power Module (NPM).	Application of NuScale's NSP CHF correlation to non-LOCA subchannel thermal-hydraulic safety calculations for the NuScale fuel design that incorporates AREVA's proven HMP/HTP technology. These safety calculations are performed using VIPRE-01.	September 2016
8	Rod Ejection Analysis Methodology	This topical report describes the codes and associated analysis methodology for the NuScale rod ejection event analysis. The report describes the methods used, along with the computer codes used and their validation bases.	The codes and associated analysis methodology for the NuScale DCD Chapter 15 rod ejection event analysis.	September 2016