

March 22, 2010

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
One White Flint North
11555 Rockville Pike
Rockville, MD 20852-2738
Washington, DC 20555-0001

SUBJECT: NuScale Response to RIS 2010-03 (NRC Project No. 0769)

REFERENCE: NRC RIS 2010-03, *Licensing Submittal Information for Small Modular Reactor Designs*, dated February 25, 2010.

In reference to Regulatory Issue Summary (RIS), the Nuclear Regulatory Commission (NRC) indicated that it seeks updated information regarding ESP, COL, DC, DA., or ML application submissions to facilitate the establishment of a predictable and consistent method for reviewing applications. The NRC encourages standardization of COL applications, which supports the Design-Centered Review Approach (DRCA). NuScale Power supports and endorses the DCRA proposed by the NRC. Responses to specific questions from the RIS are provided in Attachment 1 for the licensing of NuScale's scalable modular reactor design.

If you have any questions, please feel free to contact Thomas F. Marcille at (541) 207-3931, or at tmarcille@nuscalepower.com.

Sincerely,



Thomas F. Marcille
Chief Operating Officer

cc: Paul Lorenzini, CEO, NuScale
Michael Mayfield, NRC, TWFN-6 E4
Stuart Magruder, NRC, TWFN-6 E4
Thomas Kenyon, NRC, TWFN-6 C34
Greg Cranston, NRC, OWFN-10-A1

Attachment 1
NuScale Power Response to NRC's RIS 2010-03

DESIGN AND LICENSING SUBMITTAL INFORMATION

- When (month and year) are the applications planned for design-related applications and what NRC action will be requested?

Response: NuScale plans to submit the Design Control Document (DCD) for NRC review in January 2012 with an objective of obtaining a design certification (DC) from the NRC under 10 CFR Part 52 in December of 2014.

- Will the applicants be organized into DCWGs? If known, what is the membership of the DCWG and which party is the primary point of contact designated for each DCWG? Have protocols been developed to provide coordinated responses for RAIs with generic applicability to a design center?

Response: Although NuScale has been in discussions with other SMR vendors and potential customers, NuScale has not organized any design-specific DCWGs at this time. NuScale plans to participate in DCWGs that are established to address issues that are common to small and modular reactors that are anticipated to require action by the NRC. Examples include License Fees, Price Anderson Act, Multi-Module Control and Operation, Emergency and Security Plan Development and others. No effort has been applied by NuScale to establish DCWG membership and therefore the primary points of contact or the protocols for responding to RAIs have not been identified.

- Which applicant referencing the design will be designated as the reference COL (R-COL) applicant?

Response: The R-COL has not been identified and it will depend largely on the number of utilities expressing interest in a COL and their schedule for application.

- When (month and year) will COL or ESP applications be submitted for review? In addition, what are the design, site location, and number of units at each site?

Response: It is anticipated that an application for a COL from one or more utilities will be made during the period of the DC review (January 2012 to December 2014). Specific dates for COL or ESP applications for review, site location, and number of units at each site has yet to be determined. The DC application is being planned on the basis of a 12-module plant design.

- Are there vendors and/or consultants assisting in the preparation of the application(s)? If so, please describe roles and responsibilities for the design and licensing activities.

Response: There are vendors and consultants supporting the design effort. The extent that they will participate in preparation of the application for the DC is yet to be determined. The participants in an application for a COL will be determined by the utility. The key organizations currently performing design work are Kiewit Construction (EPC), CH2M Hill (Project Management), SAIC (Licensing), Siemens PLM (Design Process and Controls), MPR Associates (Nuclear Systems), ANATECH (Fuels Development), Curtis Wright (CRDM Design), and GSE (Simulator Design). NuScale is currently involved in negotiations with General Dynamics Electric Boat, Oregon Iron Works, and Precision Custom Components for providing additional design support and module manufacturing. There are also numerous consultants supporting analysis and evaluation of the design.

DESIGN, TESTING, AND APPLICATION PREPARATION

- What is the current status of the development of the plant design (i.e., conceptual, preliminary, or finalizing)? Has a schedule been established for completing the design? If so, please describe.

Response: Many systems and components are in the preliminary stage while others are in the conceptual stage with trade studies being completed to optimize the design. A design and quality assurance process and document control system is being established to assure and document the high quality and content of the DCD submittal. The design will be completed to a level of detail necessary to support high-quality DCD and COL submittals. The schedule for final design will be dependent on the actual COL submittal dates.

- What is the applicant's current status (i.e., planning, in progress, or complete) for the qualification of fuel and other major systems and components? Has a schedule been established for completing the qualification testing? If so, please describe.

Response: The NuScale approach to design is based on the use of structures, systems components, materials and processes that have been qualified in previous light-water reactor (LWR) applications to the maximum extent possible. The fuel, nuclear control systems, and helical coil steam generator, however, have been identified as requiring specific qualification testing and the planning for such testing is underway. A comprehensive plan to select a proven nuclear fuel supplier prior to the end of 2010 is currently being executed.

- What is the applicant's status (i.e., planning, in progress, or complete) in developing computer codes and models to perform design and licensing analyses? Has the applicant defined principal design criteria, licensing basis events, and other fundamental design/licensing relationships? Has a schedule been established for completing the design and licensing analyses? If so, please describe.

Response: The design is being completed using computer codes that have been used on approved LWRs. Detailed plans are being developed to verify and validate these codes for the NuScale operating and accident conditions with testing at the OSU integral test facility. The principal design criteria of 10CFR50 Appendix A have been used to guide the design and, where there are features such as multi-module control where additional criteria are required, they are being developed. The licensing basis events have been identified and are being periodically evaluated within the design process using risk-informed evaluations to assure that the design/licensing relationship are appropriate. A comprehensive and integrated work breakdown structure has been established for DCD development that is fully integrated with development and deployment of a robust design engineering infrastructure. The schedule for completion is system dependent and will be integrated with the DCD submittal.

- What is the applicant's status in designing, constructing, and using thermal-fluidic testing facilities and using such tests to validate computer models? Has a schedule been established for completing the thermal-fluidic testing? If so, please describe.

Response: A 1/3-scale integral test facility has been constructed at OSU that models all the major NuScale primary system components, safety systems, and containment with cooling pool. Facility configuration upgrades, instrumentation calibration, and facility characterization efforts required for quality data collection are scheduled to be completed

by June 2010. Shakedown and startup testing is scheduled to be completed by November 2010. Integral facility thermal-fluidic testing of design bases accident events is scheduled to be completed by December 2011. Data from these tests will be used to validate NuScale's computer models.

- What is the applicant's status in defining system and component suppliers (including fuel), manufacturing processes, and other major factors that can influence design decisions? Has a schedule been established for identifying suppliers and key contractors? If so, please describe.

Response: Processes for identifying and evaluating system and component suppliers have been developed and discussions with potential vendors have been conducted. NuScale is building a robust supply chain that includes multiple U.S. manufacturers and is discussed in more detail in the response below regarding NuScale's business model. The fuel supplier has not been identified but discussions are underway with several vendors. There are no manufacturing processes identified that are expected to influence design because the design is based heavily on proven practices. NuScale is hosting a customer forum on May 10 & 11, 2010 in Corvallis, Oregon offering attendees a comprehensive view of NuScale's technology and the plan, process, and timeline to make it commercially available in the U.S.

- What is the applicant's status (i.e., planning, in progress, complete) for implementing a business model, including identifying and securing funding sources, for the completion of design, testing, and licensing activities?

Response: NuScale has a well-defined business model. NuScale is the nuclear vendor responsible for the design and engineering of the Nuclear Steam Supply System (NSSS), containment and related nuclear safety systems and components. NuScale is also responsible for the design certification through the NRC, and a variety of plant support services subsequent to plant startup. NuScale has partnered with Peter Kiewit Construction, a large US architect-engineer constructor with a 125 year history, approximately \$10 Billion dollars of annual revenue, and a total of 25,000 employees. Kiewit will be the EPC contactor for NuScale's plants and will provide some design and engineering support for the balance-of-plant work required for the Design Certification Application. NuScale is working with other qualified nuclear engineering design firms to complement these efforts.

NuScale is building a robust supply chain that includes multiple U.S. manufacturers capable of assembling NuScale modules (NSSS and containment) and manufacturing other key components. NuScale, its suppliers, and Kiewit are able to provide commercial terms to utilities for the construction of a NuScale power plant. Proven nuclear suppliers and partners for major components and project development include GSE, MPR, Ansaldo, Curtis Wright, PCC, SAIC, Ares, GDEB, and Oregon Iron Works.

NuScale was formed in 2007 as a technology transfer venture from OSU and has been privately funded since its inception. NuScale's investors have substantial financial resources and are working with the investment community to provide the necessary funds to assure the company's success. They are committed to sustaining the organization through design, licensing, and domestic deployment of NuScale plants.

- What are the applicant's current staffing levels (e.g., full time equivalent staff) working on the design and testing of the reactor design? Does the applicant have plans to increase staffing, and if so, please describe future staffing plans.

Response: NuScale currently employees 35 full-time engineers with an additional 30-50 engineers working on the project as contractors and within our suppliers' organizations. To meet the planned schedule for a 2012 DCD submittal to the NRC, current staffing plans show this number increasing to 90 full-time NuScale engineers and 120 additional contract and supplier staff by the end of this year.

- What are the applicant's current and future plans for the use of contractors to support plant design and testing (e.g., how many part-time and how many full-time contractors does or will the applicant employ)?

Response: The mix of contractors and full-time staff has yet to be finalized. These manpower details will depend to a major extent on the key contractors and suppliers selected for finalizing the design and the need to support a COL application in parallel with the DC application.

WHITE PAPERS AND TECHNICAL/TOPICAL REPORTS

- What are the applicant's plans regarding the submittal of white papers or technical/topical reports related to features of their design or the resolution of policy or technical issues? Has a schedule been established for submitting such reports? If so, please describe.

Response: NuScale intends to submit 15 Licensing Topical Reports (LTRs) during the pre-application phase to receive early feedback from the NRC on a quarterly basis (see table below). In addition to the quarterly LTRs, NuScale plans to request additional pre-application meetings with the NRC on areas including, but not limited to, Fuels Development, I&C Architecture, Seismic Risk, CRDM Qualification, License Fees, Price Anderson Act, and others. In some cases, white papers may be submitted prior to each pre-application meeting to facilitate discussions.

NuScale LTR Submittal Schedule

Licensing Topical Report	CY 2010			CY 2011		
	2Q	3Q	4Q	1Q	2Q	3Q
Human Factors Engineering (HFE) Program Management Plan	X					
Loss-of-Coolant Accident (LOCA) Phenomenon Identification and Ranking Table	X					
Diversity and Defense-in-Depth Analysis		X				
HFE Implementation Plan		X				
Cyber Security Plan		X				
LOCA Integral Scaling Report		X				
Software Program Plan			X			
LOCA Testing and Assessment Plan Development			X			
Non-LOCA Methods Development			X			
Human System Interface Implementation Plan				X		
Procedure Development				X		
Fuels Development Program				X		
Core Analysis Code Verification and Validation					X	
N-RELAP5 Verification and Validation					X	
Subchannel Analysis Code Verification and Validation						X

