NuScaleDCRaisPEm Resource

From: Cranston, Gregory
Sent: Thursday, September 14, 2017 12:26 PM
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Subject: Request for Additional Information No. 229, RAI 9101 (9.2.2)
Attachments: Request for Additional Information No. 229 (eRAI. No. 9101).pdf

Attached please find NRC staff's request for additional information concerning review of the NuScale Design Certification Application.

Please submit your technically correct and complete response within 60 days of the date of this RAI to the NRC Document Control Desk.

If you have any questions, please contact me.

Thank you.

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Licensing Branch 1 (NuScale)
Division of New Reactor Licensing
Office of New Reactors
U.S. Nuclear Regulatory Commission
301-415-0546

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Request for Additional Information No. 229 (eRAI. No. 9101)

Issue Date: 09/14/2017
Application Title: NuScale Standard Design Certification - 52-048
Operating Company: NuScale Power, LLC
Docket No. 52-048
Review Section: 09.02.02 - Reactor Auxiliary Cooling Water Systems
Application Section: 9.2.2

QUESTIONS

09.02.02-4

10 CFR 52.47(a)(2) requires that a standard design certification applicant provide a description and analysis of the structures, systems, and components (SSCs) of the facility, with emphasis upon performance requirements, the bases, with technical justification therefor, upon which these requirements have been established, and the evaluations required to show that safety functions will be accomplished.

10 CFR 52.47(c)(2) requires that a standard design certification of "a nuclear power reactor design that … uses simplified, inherent, passive, or other innovative means to accomplish its safety functions must provide an essentially complete nuclear power reactor design except for site-specific elements such as the service water intake structure and the ultimate heat sink, and must meet the requirements of 10 CFR 50.43(e)."

FSAR Tier 2, Table 9.2.2-1 specifies the design heat load for the reactor component cooling water system (RCCWS) to be 21 MBtu/hr and the design flow rate for the RCCWS pumps to be 660 gpm.

FSAR Tier 2, Figure 9.2.2-1, identifies that the RCCWs provides cooling to the following heat loads:

- Control rod drive mechanism (CRDM) Cooling Coils
- Chemical and volume control system (CVCS) non-regenerative heat exchangers (NRHX)
- Containment Evacuation System (CES) condensers and vacuum pumps
- Process sampling system (PSS) coolers and analyzer cooler temperature control units (TCUs)

To clarify that the RCCWS flow and heat load specified in Table 9.2.2-1 is sufficient to provide the necessary cooling for the RCCW heat loads identified in Figure 9.2.2-1, the applicant is requested to:

- Provide the heat loads of all the above systems
- Provide the flow rate required to each of the specified heat loads
- Discuss how the operators could know that there is insufficient heat removal capability in the RCCWS and what procedures would be required for the operators to take.