

## NuScaleDCRaisPEm Resource

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**From:** Cranston, Gregory  
**Sent:** Friday, July 21, 2017 12:50 PM  
**To:** RAI@nuscalepower.com  
**Cc:** NuScaleDCRaisPEm Resource; Lee, Samuel; Chowdhury, Prosanta; Dias, Antonio; Andrukat, Dennis; Murray, Demetrius  
**Subject:** RE: Request for Additional Information No. 99, RAI 8905 (10.04)  
**Attachments:** Request for Additional Information No. 99 (eRAI No. 8905).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.

Gregory Cranston, Senior Project Manager  
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. 99 (eRAI No. 8905)

Issue Date: 07/21/2017

Application Title: NuScale Standard Design Certification - 52-048

Operating Company: NuScale Power, LLC

Docket No. 52-048

Review Section: 10.04.10 - Auxiliary Steam System

Application Section: 10.4.10 - Auxiliary Boiler System

### QUESTIONS

#### 10.04.10-1

10 CFR 52.47(c)(2) requires, in part, 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).”

GDC 4 requires, in part, that structures, systems, and components (SSCs) important to safety be “appropriately protected against dynamic effects, including the effects of missiles, pipe whipping...that may result from equipment failures and from events and conditions outside the nuclear power unit.” The requirements of GDC 4 are met when the auxiliary boiler system (ABS) design includes provisions to accommodate the effects of missiles and boiler explosions.

FSAR Tier 2, Table 10.4-20, “Auxiliary Boiler System Component Design Parameters,” indicates that the high-pressure and low-pressure auxiliary boilers are committed to piping code ASME B31.1, “Power Piping.” The scope of ASME B31.1 does not include the boiler proper. No further information is provided for the remaining components of the ABS. The staff is unable to determine what code or standard is used for the boiler portions (such as vessels) and remaining components (such as piping) of the ABS. The staff is concerned that, without referencing a proper code or standard, contained steam and high pressures could leave the boiler and piping vulnerable to explosion, resulting in possible damage of nearby safety systems and components (SSCs).

The applicant is requested to provide the additional auxiliary boiler system information including any supporting figures, drawings, and a discussion of how proper codes or standards are adequately used for the design of boiler vessels and piping. The staff expects the entire auxiliary boiler system to be accounted for. The FSAR is to be modified accordingly.

#### 10.04.10-2

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, Section 10.4.10 presents the following COL Information Item 10.4-2: “A COL applicant that references the NuScale Power Plant design certification will describe the site-specific auxiliary boiler system, the chemistry requirements, chemistry maintenance program, and how the system meets the design requirements.”

The staff is unclear as to what specific information is part of the design certification and what will part of the COL application. The FSAR Tier 2, Section 10.4.10 appears to indicate that only the boiler skids, the boiler/fuel type, and programmatic aspects are left for the COL applicant to address.

The applicant is requested to clarify the site-specific design information that the COL will need to provide. The FSAR is to be modified accordingly.