NuScaleDCRaisPEm Resource

From: Cranston, Gregory
Sent: Thursday, January 18, 2018 10:06 AM
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Subject: Request for Additional Information No. 339 RAI No. 9275 (12.3)
Attachments: Request for Additional Information No. 339 (eRAI No. 9275).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. 339 (eRAI No. 9275)

Issue Date: 01/18/2018
Application Title: NuScale Standard Design Certification - 52-048
Operating Company: NuScale Power, LLC
Docket No. 52-048
Review Section: 12.03-12.04 - Radiation Protection Design Features
Application Section: 12.3, 9.1.2

QUESTIONS

12.03-13

Regulatory Basis

10 CFR 50.34.f(2)(xxvi) [NUREG- 0737 III.D.1.1] "Additional TMI-related requirements," requires leakage control and detection for systems outside containment that might contain highly radioactive fluids, and requires applicants to submit a leakage control program, including an initial test program and a schedule for retesting systems.

Appendix A to 10 CFR Part 50— "General Design Criteria for Nuclear Power Plants," Criterion (GDC) 61 "Fuel Storage and Handling and Radioactivity Control," requires that new and spent fuel storage facilities include provisions for inspection and testing are necessary to verify that there is no corrosion of the spent fuel pool liner.

10 CFR 52.47(a)(6) requires compliance with the requirements of 10 CFR 20.1406 "Minimization of contamination," which requires a description in the DCD how facility design and procedures for operation will minimize, to the extent practicable, contamination of the facility and the environment, facilitate eventual decommissioning, and minimize, to the extent practicable, the generation of radioactive waste.

10 CFR 20.1406 requires applicants to describe in the application how facility design and procedures for operation will minimize, to the extent practicable, contamination of the facility and the environment, facilitate eventual decommissioning, and minimize, to the extent practicable, the generation of radioactive waste. The acceptance criteria of NuScale DSRS Section 12.3-12.4, "Radiation Protection Design Features," state that the applicant is to describe how facility design and procedures for operation will minimize, to the extent practicable, contamination of the facility and the environment, facilitate eventual decommissioning, and minimize, to the extent practicable, the generation of radioactive waste.

10 CFR 20.1101(b) and 10 CFR 20.1003, require the use of engineering controls to maintain exposures to radiation as far below the dose limits in 10 CFR Part 20 as is practical. The guidance provided in NuScale DSRS Section 12.3-12.4 "Radiation Protection Design Features," and Standard Review Plan (SRP) Section 9.1.2 "New and Spent Fuel Storage," are consistent with and support the review of the design features provided for satisfy these regulatory requirements.

Background

The guidance in Regulatory Guide (RG) 1.68 "Initial Test Programs for Water-Cooled Nuclear Power Plants," to meet the initial test requirements stated in 10 CFR 50.34.f(2)(xxvi) and NUREG- 0737 III.D.1.1. The guidance contained in NUREG-0737 III.D.1.1, specifically identifies systems that should have initial leakage rate tests performed, including the chemical and volume control system (CVCS), the plant sampling system (PSS) and the gaseous radioactive waste system (GRWS).

Key Issue 1

DCD Tier 2 Revision 0 Table 14.2-36, "Gaseous Radioactive Waste System Test # 36," does not contain an initial leakage test consistent with 10 CFR 50.34.f(2)(xxvi) and NUREG- 0737 III.D.1.1. DCD Table 14.2-38, "Chemical and Volume Control System Test # 38," does not contain an initial leakage test consistent with 10 CFR 50.34.f(2)(xxvi) and NUREG- 0737 III.D.1.1. DCD Table 14.2-53, "Process Sampling System Test # 53," does not contain an initial leakage test consistent with 10 CFR 50.34.f(2)(xxvi) and NUREG- 0737 III.D.1.1.

Question 1
To facilitate staff understanding of the application information sufficient to make appropriate regulatory conclusions with respect to demonstrating compliance with the requirements of 10 CFR 50.34.f(2)(xxvi) and consistent with the guidance in NUREG- 0737 III.D.1.1, the staff requests that the applicant:

- Justify/explain how the proposed NuScale testing program meets the requirements of 10 CFR 50.34.f(2)(xxvi), for the CVCS, PSS and GRWS,
- As necessary, revise DCD Section 14.2 to include the pre-operational leakage tests for the CVCS, PSS and GRWS

OR

Provide the specific alternative approaches used and the associated justification.