
NuScale Standard Design Approval Application for the US460

Quarterly NuScale-NRC Management
Public Meeting
January 30, 2024

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INFORMATION

Opening Remarks

Agenda

- ❖ Opening Remarks
- ❖ NuScale US460 Standard Design Approval Application (SDAA) Review Overview
- ❖ Phase A Safety Review
- ❖ Requests for Additional Information (RAI)
- ❖ High Impact Technical Issues (HITIs)
- ❖ Focus Items Supporting Reliable Schedule Development (FISDs)
- ❖ Topical Reports (TRs)
- ❖ Generic Licensing Activities (Non-SDAA)
- ❖ SDAA Review Interim Lessons Learned
- ❖ Closing remarks

US460 SDAA Review Overview

- ❖ SDAA staged submittal was completed in January 2023
- ❖ The NRC staff issued the results of its acceptance review with a request for supplemental information (RSI) on March 17, 2023
- ❖ The staff began detailed safety evaluation of portions of the application not impacted by the RSI on March 20, 2023
- ❖ Following the receipt of the supplemental information on July 14 and 17, 2023, a docketing letter was issued on July 31, 2023, that included a four phase, 24-month review schedule
- ❖ The staff issued a resource estimate letter on September 22, 2023. The SDAA review will require approximately 50,000 staff hours and \$650,000 for contractor support

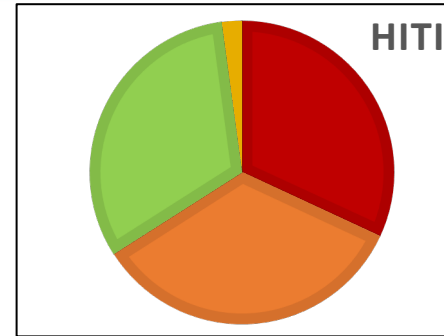
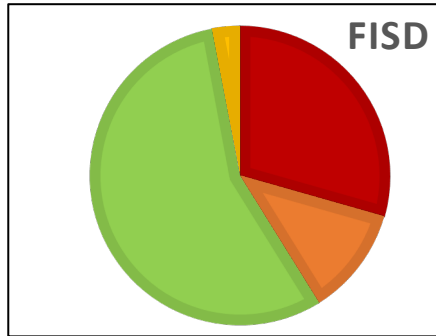
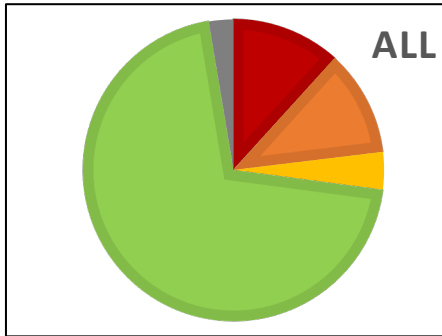
US460 SDAA Review Overview

Four Phase Review milestones

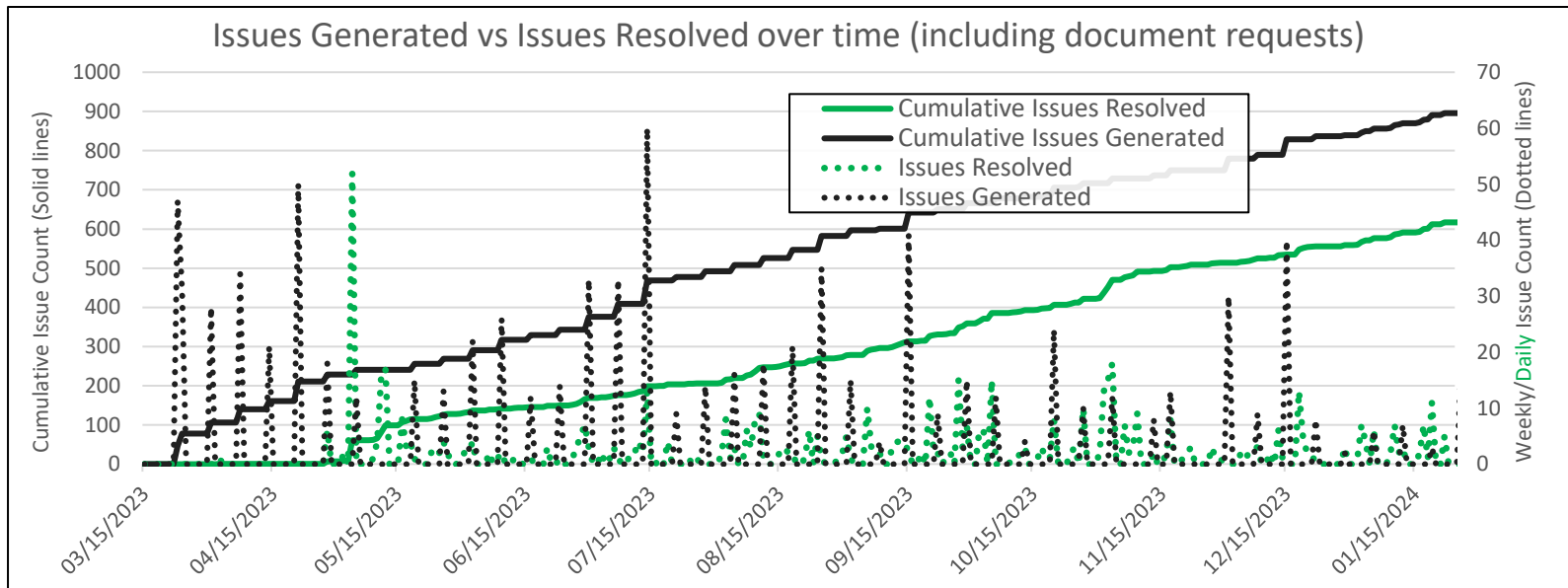
Phase	Phase Name	End date
Phase A	Advanced Safety Evaluation Report (ASER) without open items (draft completion date; internal NRC schedule)	November 2024
Phase B	ASER review (technical editing), Management concurrence	February 2025
Phase C	ACRS Review of ASER	May 2025
Phase D	Final Safety Evaluation Report (FSER) and SDA	July 2025

Phase A Safety Review

- ❖ NRC staff completed Phase A reviews for Chapters 2, 10, 11, 13, and 18.
- ❖ As of January 24, 2024, the NRC staff has presented 848 document requests and items for explanations in the audit.
 - ❑ 612 items have been resolved in the audit,
 - ❑ 99 items provided by NuScale are under review by the staff, and
 - ❑ 102 items are waiting for NuScale to provide in the audit.
 - ❑ 35 items resulted in request for additional information



Issues by Category	Total	Awaiting Response	NRC Reviewing	Resolved in Audit	Sent to RAI process
ALL	767	75	79	578	33
FISD	34	10	4	19	1
HITI	47	15	16	15	1



Requests for Additional Information (RAI)

- ❖ The NRC staff has issued a total of 27 RAI questions, as of January 30, 2024
- ❖ NuScale responded to RAI questions on or before schedule
- ❖ 9 RAI questions have been resolved closed
- ❖ 1 RAI question response was found unacceptable
- ❖ 13 RAI responses are under NRC review
- ❖ 4 RAI are awaiting responses

High Impact Technical Issues (HITIs)

1. Design and classification of EDAS
2. LOCA break spectrum
3. Incorporated by Reference (IBR)
4. CNV material change – Resolved
5. Lower RPV material change - Resolved
6. Secondary side controller design for DWO events
7. DWO and steam generator inlet flow restrictor design changes
8. ASME qualification of the helical coil steam generator for the onset of DWO-induced loads

Focus Items For Schedule Development (FISDs)

- ❖ As of January 24, 2023, the staff presented 34 FISD document requests and items for explanations in the audit.
 - ❑ 19 items have been resolved in the audit,
 - ❑ 4 items provided by NuScale are under review by the staff,
 - ❑ 10 items are waiting for NuScale to provide additional information or revised responses, and
 - ❑ 1 item sent to RAI process

- ❖ NRC-NuScale deep dive on FISDs complete – The remaining FISD items will continue to be tracked in the audit unless issues need to be converted to RAIs or HITIs

Topical Reports (TRs)

❖ Pre-SDAA TRs

- ❑ Six of eight TRs submitted prior to the SDAA are completed.
- ❑ Advances Safety Evaluations for the other two pre-SDAA TRs were issued to ACRS:
 - Rod Ejection Accident Methodology – Advance SE: January 2024
 - Subchannel Analysis Methodology – Advance SE: October 2023
- ❑ ACRS presentations for Subchannel and Rod Ejection TRs scheduled for February 6, 2024

❖ Four TRs submitted with SDAA are included in the SDAA Phase A audit

Generic Licensing Activities (non-SDAA)

❖ Generic TRs:

- ❑ Mitigation of Beyond-Design-Basis Events TR submitted on September 11, 2023. The staff accepted the TR for detailed review. The staff plans to complete the Advance SE by August 31, 2024.
 - ❑ Fuel Storage Rack Design TR submitted on October 9, 2023. The staff has accepted the TR for detailed review. Plans to complete the Advance SE by May 2025.
 - ❑ Reactor Flange Tool Support Design TR's pre-application meeting was held on October 26, 2023. The planned TR submittal has been delayed.
 - ❑ Application-Specific Modifications to the Base HIPS Platform TR – Pre-application meeting held on November 20, 2023. The planned TR submittal has been delayed.
- ❖ (NuScale DCA) Request for Exemption to the Reporting Requirements of 10 CFR 50.46(a)(3) [Changes to the approved LOCA methodology] is currently under review.

SDAA Review Interim Lessons Learned

- ❖ DNRL has completed an interim lessons learned from the first-year review of the SDAA. The major takeaways are:
 - ❑ Audit process has worked well. Many of the issues the staff have raised in the audit would have been communicated as RAI in previous reviews. As audits progress, and the staff is not getting the information needed to make their safety finding, they should move to issue an RAI.
 - ❑ RAIs should have clear and appropriate background and a description of the issue, specific regulatory basis that is directly related to the question being asked, and specific information needs that will support the staff evaluating the issue and making their safety finding. This should include any specific information that needs to be included in a revised final safety analysis report.
 - ❑ Projects has created a new milestone in RPS to track SE with OI. The staff should be developing their safety evaluation report input throughout the audit review to ensure that they are capturing all the information that may be missing from the application that is needed to make their safety finding. This will allow these information needs to be a part of the audit and, if the staff is at an impasse with the applicant on the information needed to make a safety finding, issue an RAI. An RAI developed in this manner is, in effect, an open item in the staff's review.

Closing Remarks

Questions?

