July 1, 2022 Docket No. 99902078

U.S. Nuclear Regulatory Commission
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SUBJECT: NuScale Power, LLC Submittal of Presentation Materials Entitled "SDAA: Updates to ITAAC," PM-120437, Revision 0

NuScale Power, LLC (NuScale) has requested a meeting with the NRC technical staff on July 12, 2022, to discuss SDAA: Updates to ITAAC.

The purpose of this submittal is to provide presentation materials to the NRC for use during this meeting.

The enclosure to this letter is the nonproprietary version of the presentation entitled "SDAA: Updates to ITAAC."

This letter makes no regulatory commitments and no revisions to any existing regulatory commitments.

If you have any questions, please contact Stephanie Terwilliger at 541-452-7617 or at sterwilliger@nuscalepower.com.

Sincerely,

Mark W. Shaver
Manager, Licensing
NuScale Power, LLC

Distribution: Michael Dudek, NRC
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Enclosure: "SDAA: Updates to ITAAC," PM-120437, Revision 0

Enclosure:

"SDAA: Updates to ITAAC," PM-120437, Revision 0

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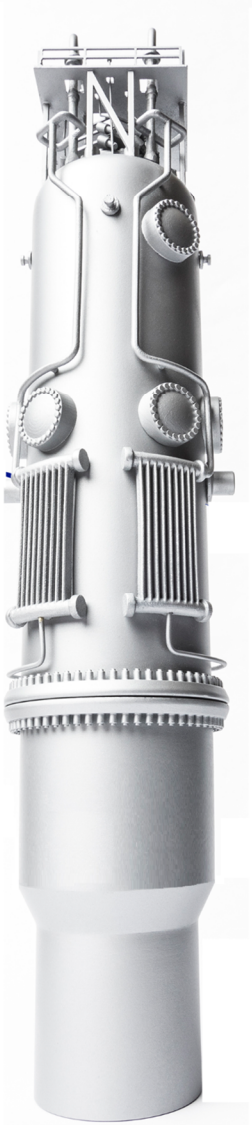

SDAA Public Meeting Presentation

July 12, 2022

SDAA: Updates to ITAAC

Stephanie Terwilliger
Licensing Supervisor

Presenters

- Jeffrey Zhou
  - Licensing Engineer
- Chris Maxwell
  - ITAAC Program Manager

Agenda

- Purpose
- Changes from Design Certification Application (DCA)
  - Overview
  - Example
- Summary

Purpose of Public Meeting

- Present NuScale's method for including Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) in the standard design approval application (SDAA)
- Discuss the level of review and expectations

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Changes from DCA - Overview

- An SDA does not have a Tier 1
- Relocation of ITAAC to Part 8
- Consolidation of ITAAC related discussion and data in Part 8

DCA vs SDAA Structure Comparison

Design Certification – Part 2

- Tier 1, Chapters 2 and 3
  - Certified Design Material
    - Design Descriptions
    - System Descriptions
    - Design Commitments
    - CDM Tables
    - CDM Figures
  - ITAAC
    - ITAAC Tables
    - ITAAC Design Features and Equipment Tables
    - ITAAC Figures
- Tier 2, Section 14.3
    - ITAAC Cross Reference Tables
    - ITAAC Design Features and Equipment Tables

Standard Design – Part 8

- Chapters 2 and 3
  - ITAAC Design Descriptions
    - ITAAC System Descriptions
    - Design Commitments
  - ITAAC
    - ITAAC Tables
    - ITAAC Design Features and Equipment Tables
    - ITAAC Figures
    - ITAAC Cross Reference Tables

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SDAA Part 8 Formatting and Content Overview

- ITAAC Design and System Descriptions
  - Identifies the scope of the section
  - Lists the functions verified by ITAAC
  - Lists the ITAAC Design Commitments
  - Excludes Certified Design Material (CDM) not directly required for ITAAC
- ITAAC
  - ITAAC formatting the same as DCA (3 column format)
  - ITAAC wording generally unchanged from DCA
    - Some renumbering to eliminate “Not used” and table numbering changes
    - Minor editorial changes
- ITAAC Tables
  - Changes limited to those required to support design changes (scope and equipment IDs)
  - Excludes CDM not directly required for ITAAC

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Example: Section 2.1 Changes from DCA to SDAA

Part ~~2~~ **8**, ~~Tier 1~~, Chapter 2

2.1 NuScale Power Module

2.1.1 **ITAAC** Design Description

- **ITAAC** System Description
  - Scope
  - ~~Equipment locations~~
  - ~~Certified design material~~
  - Functions verified by ITAAC
- Design Commitments

2.1.2 Inspections, Tests, Analyses, and Acceptance Criteria

- Table 2.1-1: NuScale Power Module Inspections, Tests, Analyses, and Acceptance Criteria **(ITAAC 02.01.xx)**
- **Table 2.1-2: NuScale Power Module ITAAC Additional Information** *(formerly Tier 2, Table 14.3-1 information)*
- Table 2.1-3: NuScale Power Module Piping Systems
- Table 2.1-4: NuScale Power Module Mechanical Equipment
- Table 2.1-5: NuScale Power Module Electrical Equipment
- **Table 2.1-6: NuScale Power Module ITAAC Top-Level Design Feature Categories** *(formerly Tier 2, Table 14.3-1 information)*
- ~~Figure 2.1-1: Containment System (Isolation Valves)~~ *(redundant to Part 2 Figure 6.2-4 and not referenced by ITAAC)*

Example: Section 2.1 Changes from DCA to SDAA

DCA Version

Part 2, Tier 1, Chapter 2

2.1 NuScale Power Module

2.1.1 Design Description

- System Description
  - Scope
  - Equipment locations
  - Certified design material
  - Functions verified by ITAAC
- Design Commitments

SDAA Version

Part 8, Chapter 2

2.1 NuScale Power Module

2.1.1 ITAAC Design Description

- ITAAC System Description
  - Scope
  - Functions verified by ITAAC
- Design Commitments

(SDAA version with content changes from DCA version annotated)

2.1.2 Inspections, Tests, Analyses, and Acceptance Criteria

- Table 2.1-1: NuScale Power Module Inspections, Tests, Analyses, and Acceptance Criteria
- Table 2.1-2: NuScale Power Module ITAAC Additional Information ***(New table, formerly Tier 2 Table 14.3-1 information)***
- Table 2.1-3: NuScale Power Module Piping Systems
- Table 2.1-4: NuScale Power Module Mechanical Equipment
- Table 2.1-5: NuScale Power Module Electrical Equipment
- Table 2.1-6: NuScale Power Module ITAAC Top-Level Design Feature Categories ***(New table formerly Tier 2, Table 14.3-1 information)***
- ~~Figure 2.1-1: Containment System (Isolation Valves)~~ ***(Removed, redundant to Part 2 Figure 6.2-4 and not referenced by ITAAC)***

Example: Section 2.1 Changes from DCA to SDAA

2.1 NuScale Power Module

2.1.1 Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) Design Description

ITAAC System Description

The scope of this section is the NuScale Power Module (NPM) and its associated systems. The systems contained within the boundary of the NPM are the

- reactor coolant system (RCS), including the reactor pressure vessel (RPV), pressurizer, steam generator (SG), reactor vessel internals (RVI), and associated piping and valves. All RCS piping is located inside the containment vessel (CNV)...

The NPM performs the following safety-related functions that are verified by Inspections, Tests, Analyses, and Acceptance Criteria:

- The RCS supports the containment system (CNTS) by supplying the reactor coolant pressure boundary (RCPB) and a fission product boundary via the RPV...

Design Commitments

- The NuScale Power Module ASME Code Class 1, 2, and 3 piping systems listed in Table 2.1-3 and NuScale Power Module ASME Code Class 1, 2, 3, and CS components listed in Table 2.1-4 comply...

Example: Section 2.1 Changes from DCA to SDAA

Table 2.1-1. NuScale Power Module Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC 02.01.xx)

No.	Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
01.	The NuScale Power Module ASME Code Class 1, 2, and 3 piping systems listed in Table 2.1-3...	i. An inspection will be performed of the NuScale Power Module ASME Code Class 1, 2, and 3 as-built piping...	i. The ASME Code Section III Design Reports (NCA-3550) exist and conclude that the NuScale Power Module ASME...

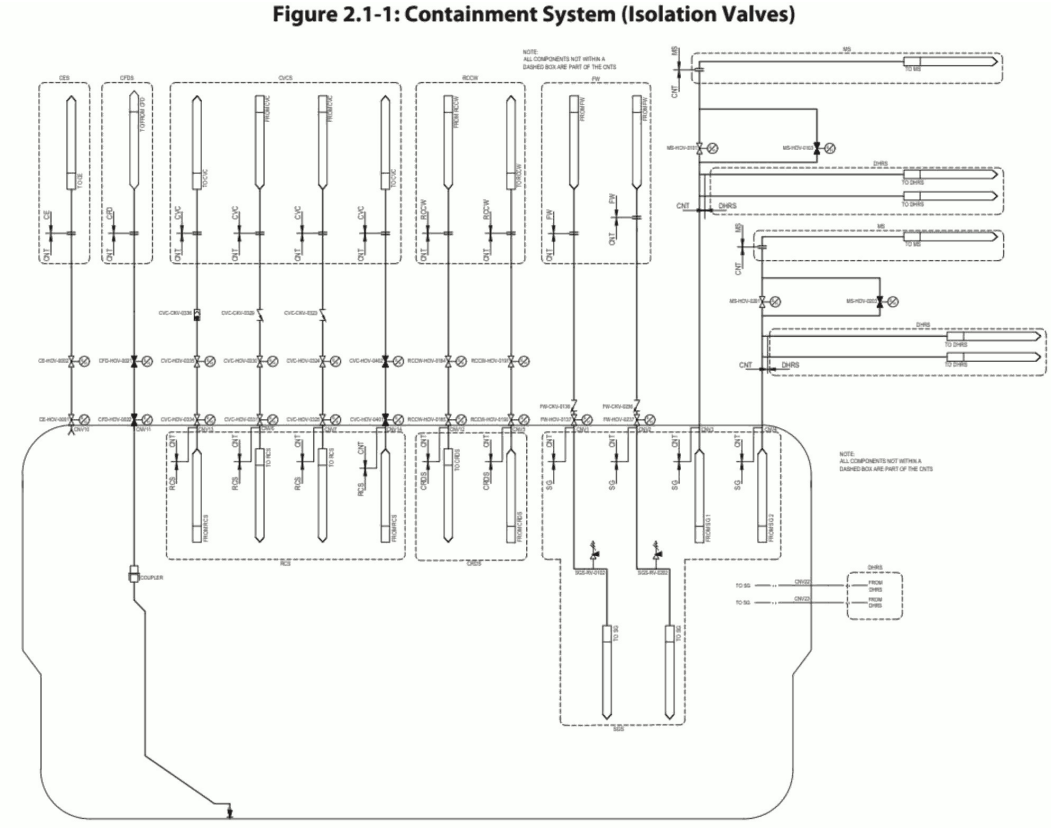
Table 2.1-2. NuScale Power Module Inspections, Tests, Analyses, and Acceptance Criteria Additional Information

ITAAC No.	Discussion
02.01.01	As required by ASME Code Section III NCA-1210, each ASME Code Class 1, 2, and 3 component (including piping systems) of a nuclear power plant requires a Design Report in accordance with NCA-3550. NCA-3551.1 requires that the drawings used for construction be in agreement with the Design Report before it is certified and be identified...

Table 2.1-6. NuScale Power Module Inspections, Tests, Analyses, and Acceptance Criteria Top-Level Design Feature Categories

ITAAC No.	Design Basis Accident	Internal/External Hazard	Radiological	PRA & Severe Accident	Fire Protection
02.01.01	X				
...	...	...	...	...	...

Example: Certified Design Material Figure



- Identical to Part 2 Figure 6.2-4
- Not referenced by ITAAC

Example: Certified Design Material Table

Described in Part 2 Chapter 7

Not referenced by ITAAC

Table 2.5-3: Module Protection System Manual Switches

Reactor trip
Operating bypass
Emergency core cooling system actuation
Containment system isolation actuation
Decay heat removal system actuation
Secondary system isolation actuation
Chemical and volume control system isolation actuation
Demineralized water system isolation actuation
Pressurizer heater breaker trip
Low temperature overpressure protection actuation
Main control room isolation
Override
Enable nonsafety control

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Summary

- Including ITAAC in Part 8 of the SDAA
  - Reduces redundant content for review
  - Preserves the ITAAC related work done in the DCA
  - Consolidates related information in one location
  - Improves standardization

- Evaluation
  - ITAAC receives finality within the evaluation of FSAR chapters
  - NuScale is evaluating methods for making changes to an SDA

Questions?

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Acronyms

ASME	American Society of Mechanical Engineers
CDM	certified design material
CNTS	containment system
CNV	containment vessel
DCA	design certification application
ITAAC	inspections, tests, analyses, and acceptance criteria
NPM	NuScale Power Module
RCPB	reactor coolant pressure boundary
RCS	reactor coolant system
RPV	reactor pressure vessel
RVI	reactor vessel internals
SDAA	standard design approval application
SG	steam generator