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Enclosure 1:

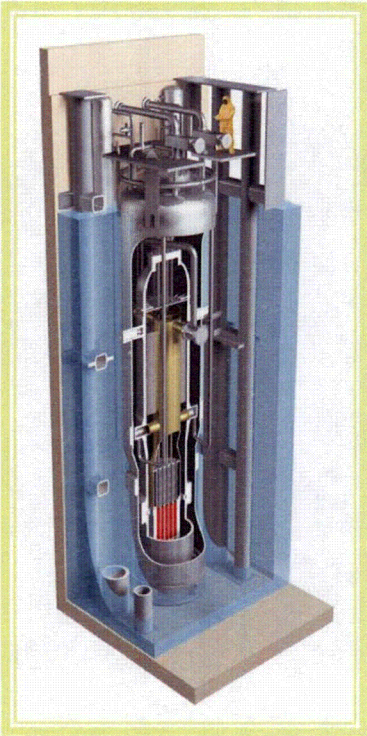
"NuScale Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC)," PM-0815-17015-NP,
Revision 0, nonproprietary version

NuScale Power, LLC

1100 NE Circle Blvd., Suite 200 Corvallis, Oregon 97330 Office 541.360-0500 Fax 541.207.3928
www.nuscalepower.com

NuScale Nonproprietary

NuScale Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC)



Carl Dumsday
NuScale Tier 1 and ITAAC Lead

September 17, 2015

Acknowledgement & Disclaimer

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Purpose

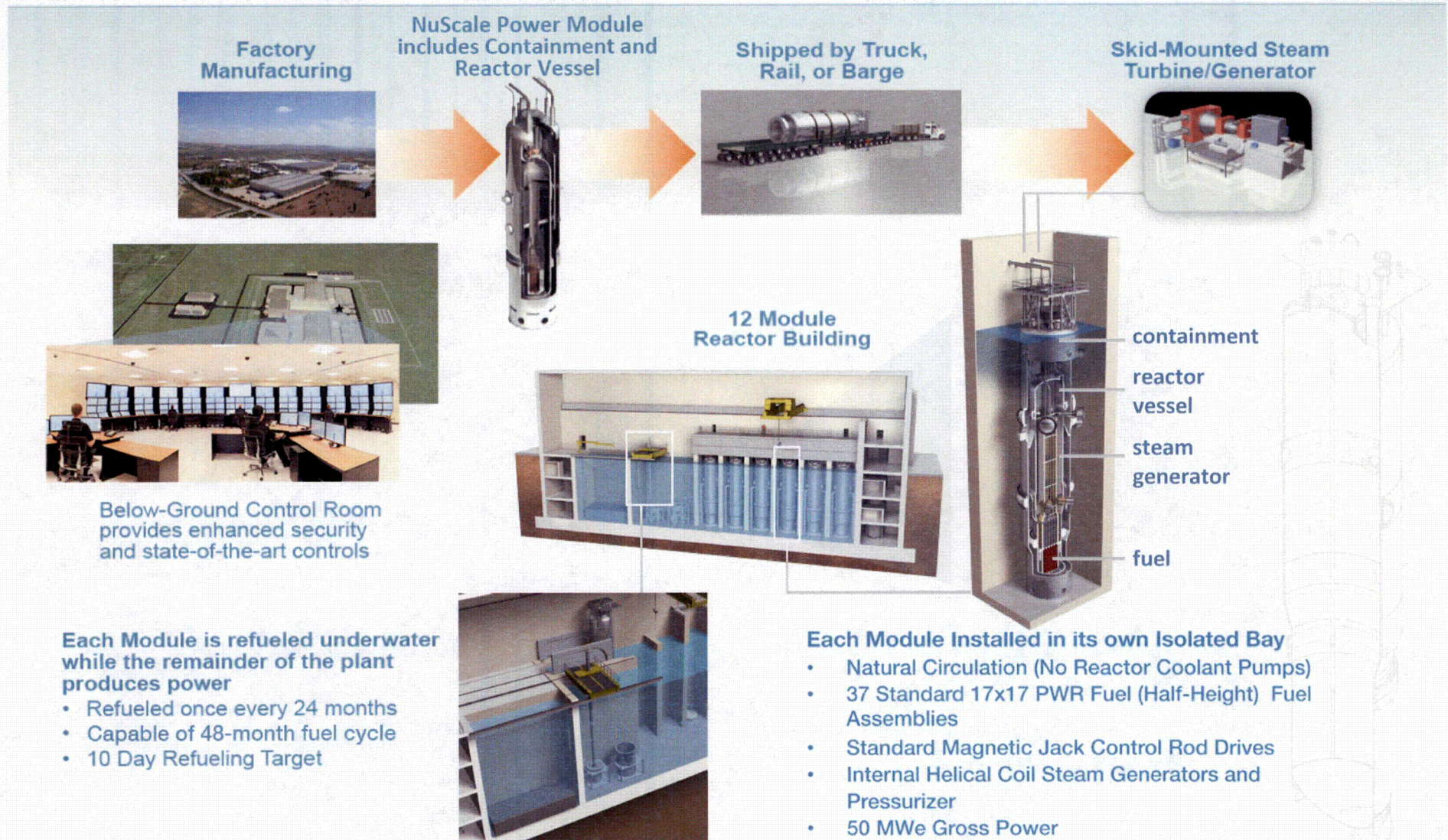
- Describe the NuScale Tier 1 development process and structure, and provide an example of results
- Inform NRC of ITAAC aspects unique to NuScale design
- Discuss NuScale comments relating to NuScale Design-specific Review Standard (DSRS), Section 14.3.x
- Solicit NRC feedback on NuScale strategy and structure

Agenda

9:00 – 9:15 am	Welcome and Introductions (OPEN)
9:15 – 9:45 am	Meeting Purpose and Overview of NuScale Plant Design (OPEN)
9:45 – 10:30 am	Part 1 – Application of NEI 15-02 Guidance in Development of NuScale ITAAC (OPEN)
10:30 – 10:45 am	Break
10:45 – 11:30 am	Part 2 – Application of NEI 15-02 Guidance in Development of NuScale ITAAC (OPEN)
11:30 – 11:45 am	Use of DRAP Process in Tier 1 Development (OPEN)
11:45 – 12 noon	Module-Specific System vs. Shared System ITAAC (OPEN)
12 noon – 1:00 pm	Break – Lunch
1:00 - 1:45 pm	NuScale Review of DSRS Sections 14.3.X (OPEN)
1:45 – 2:00 pm	End of Public Session, Transition to CLOSED Meeting
2:00 – 3:00 pm	Tier 1 Design Description and ITAAC for the NuScale Reactor Module (CLOSED)
3:00 – 3:15 pm	Summarize and Questions

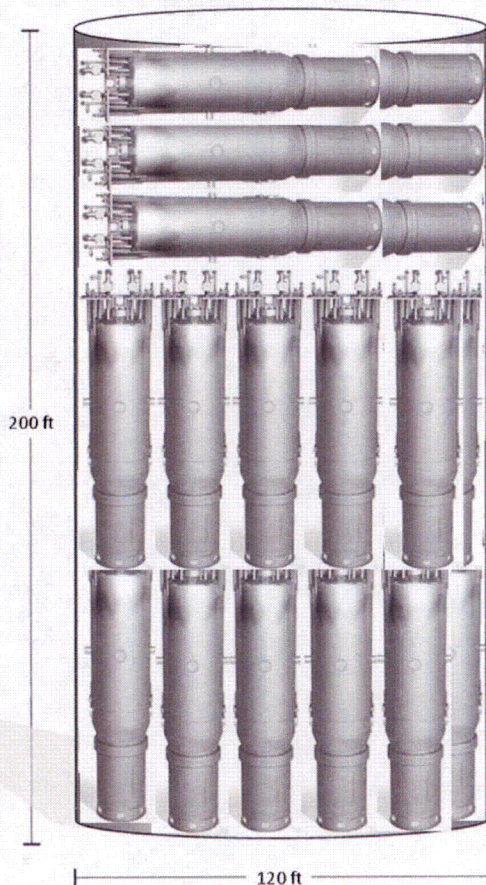
Overview of NuScale Plant Design

Plant Design Overview



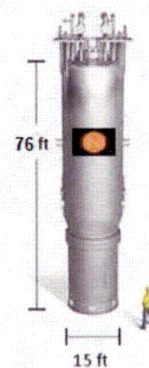
Size Comparison

126 NuScale Power Modules

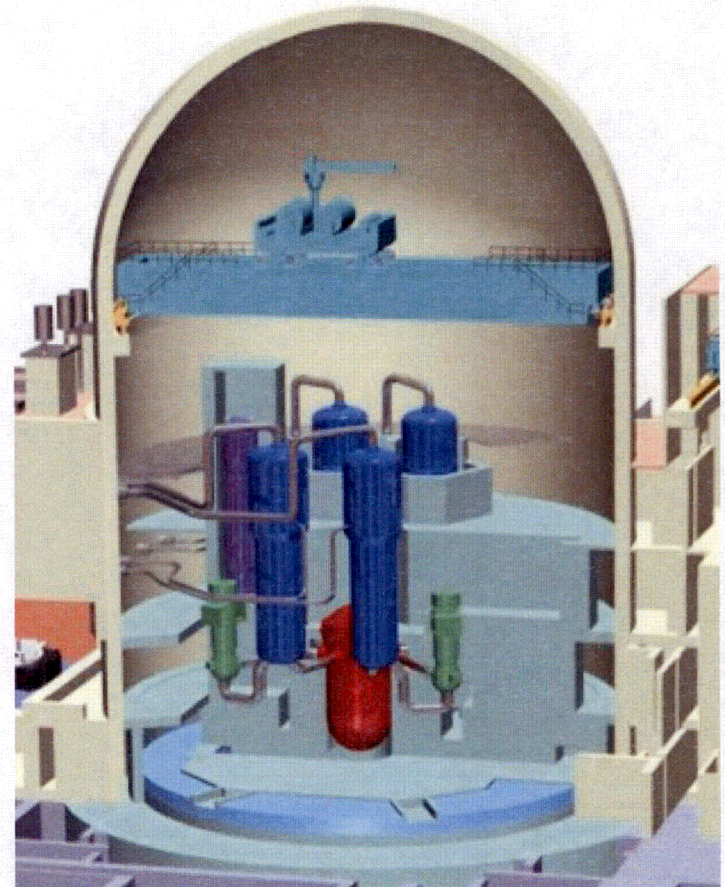


Containment

NuScale's combined
containment vessel
and reactor system

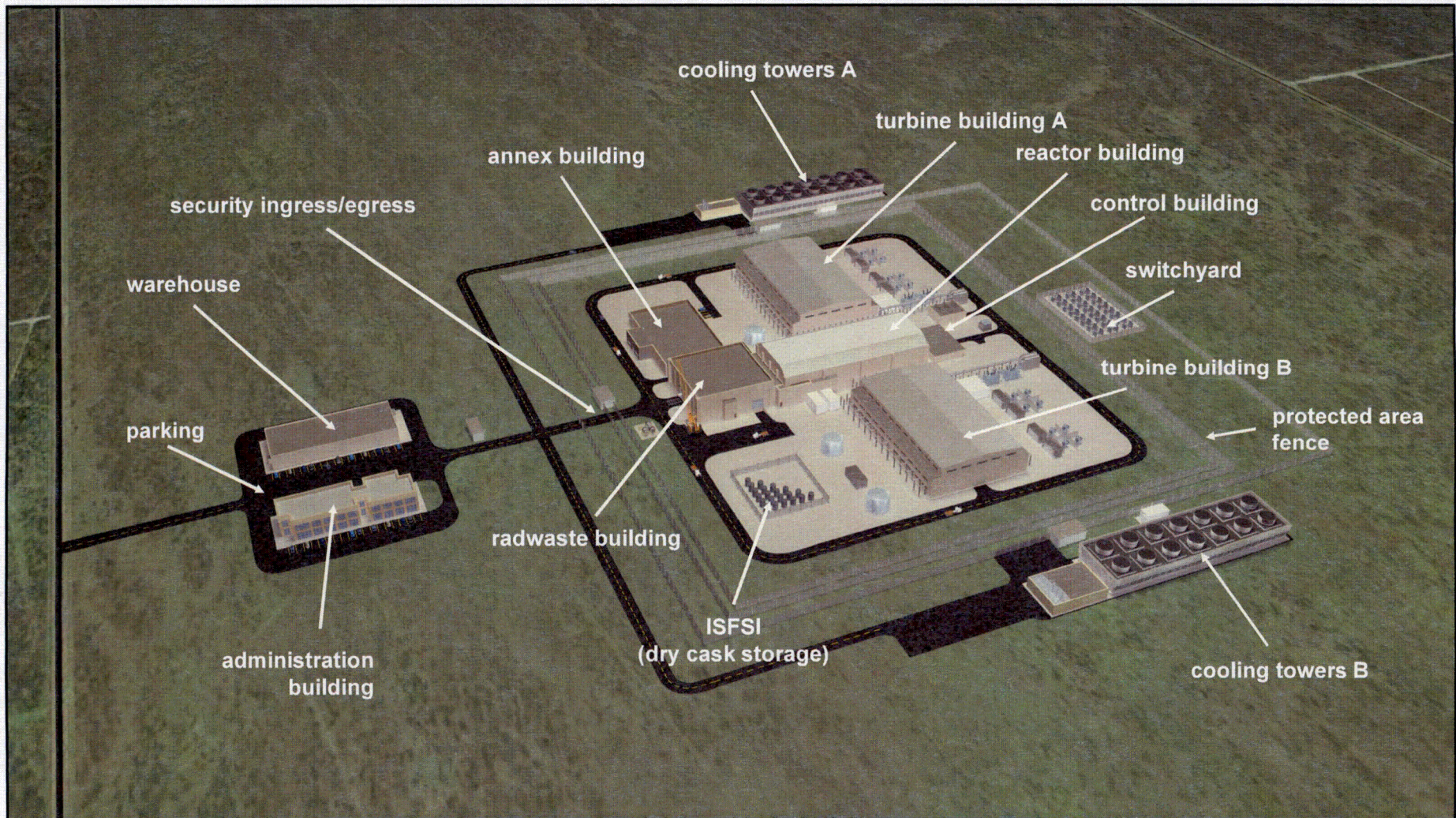


Typical Pressurized-Water Reactor



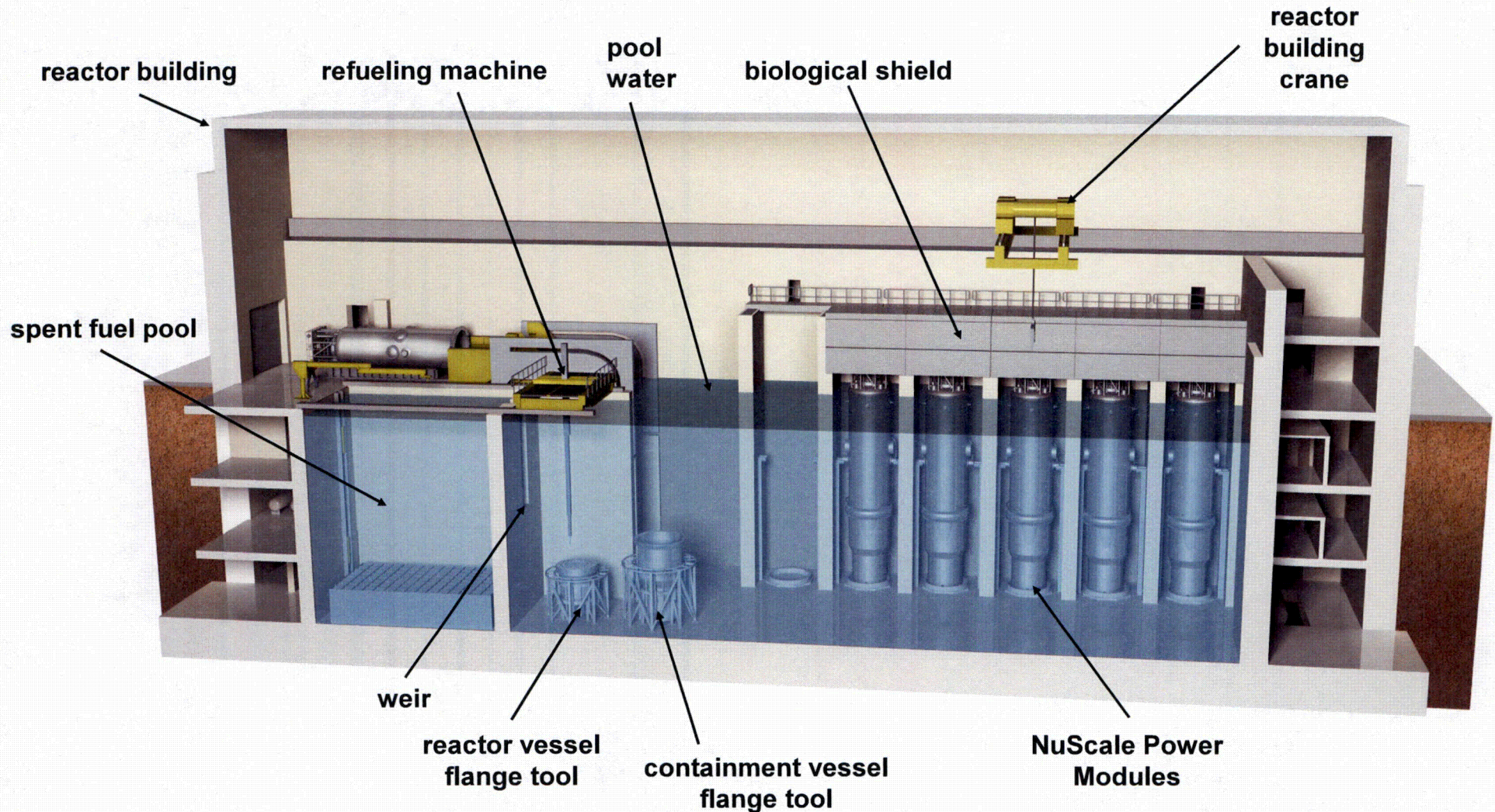
*Source: NRC

Site Aerial View

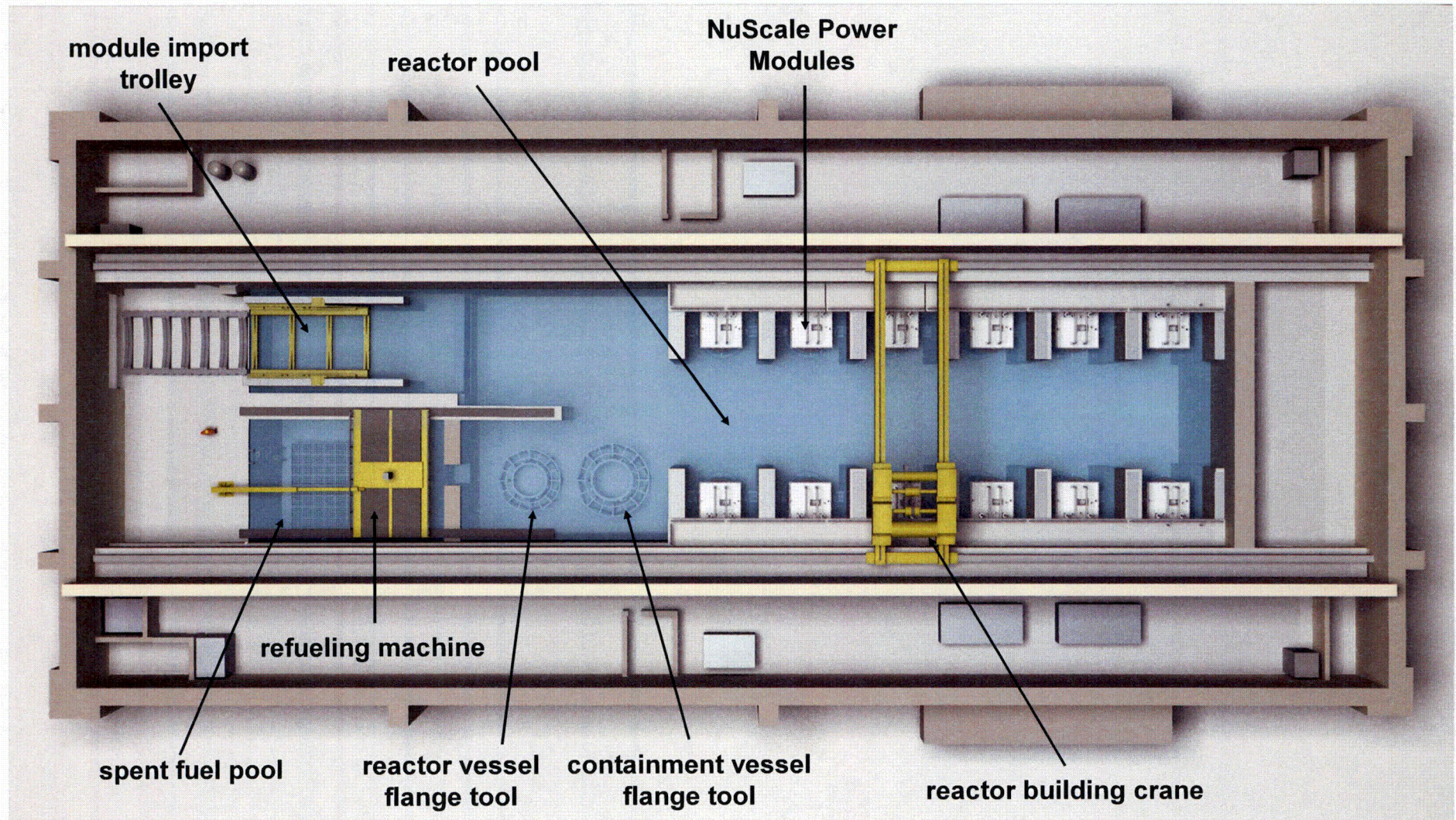


Reactor Building Cross-Section

Reactor building houses reactor modules, spent fuel pool, and reactor pool



Reactor Building Overhead View



Design Simplification

- **New System**

- containment evacuation
- containment flooding and drain

- **Eliminated Systems**

- containment spray
- auxiliary feedwater
- ECCS injection and recirculation
- steam generator blowdown
- electrical generator hydrogen supply
- safety-related electrical systems

- **Eliminated Components**

- reactor coolant pumps
- ECCS pumps, tanks, and RPV injection lines
- containment sumps and tanks
- refueling water storage tank
- reactor coolant hot leg and cold leg piping
- pressurizer surge line and relief tank
- reactor vessel and primary coolant system insulation
- safety-related emergency diesel generators
- containment fan coolers

Application of NEI 15-02 Guidance in Development of NuScale ITAAC

Development of NEI 15-02

NEI 15-02, Industry Guideline for the Development of Tier 1 and ITAAC Under 10 CFR Part 52, reflects the discussions at Nuclear Regulatory Commission (NRC) public workshops over 18 months during 2013-2015 concerning the development of standardized ITAAC for light water reactors (LWR) designs. The team consisted of NRC, NEI representatives from SMR vendors, the nuclear utility industry, and COL representatives.

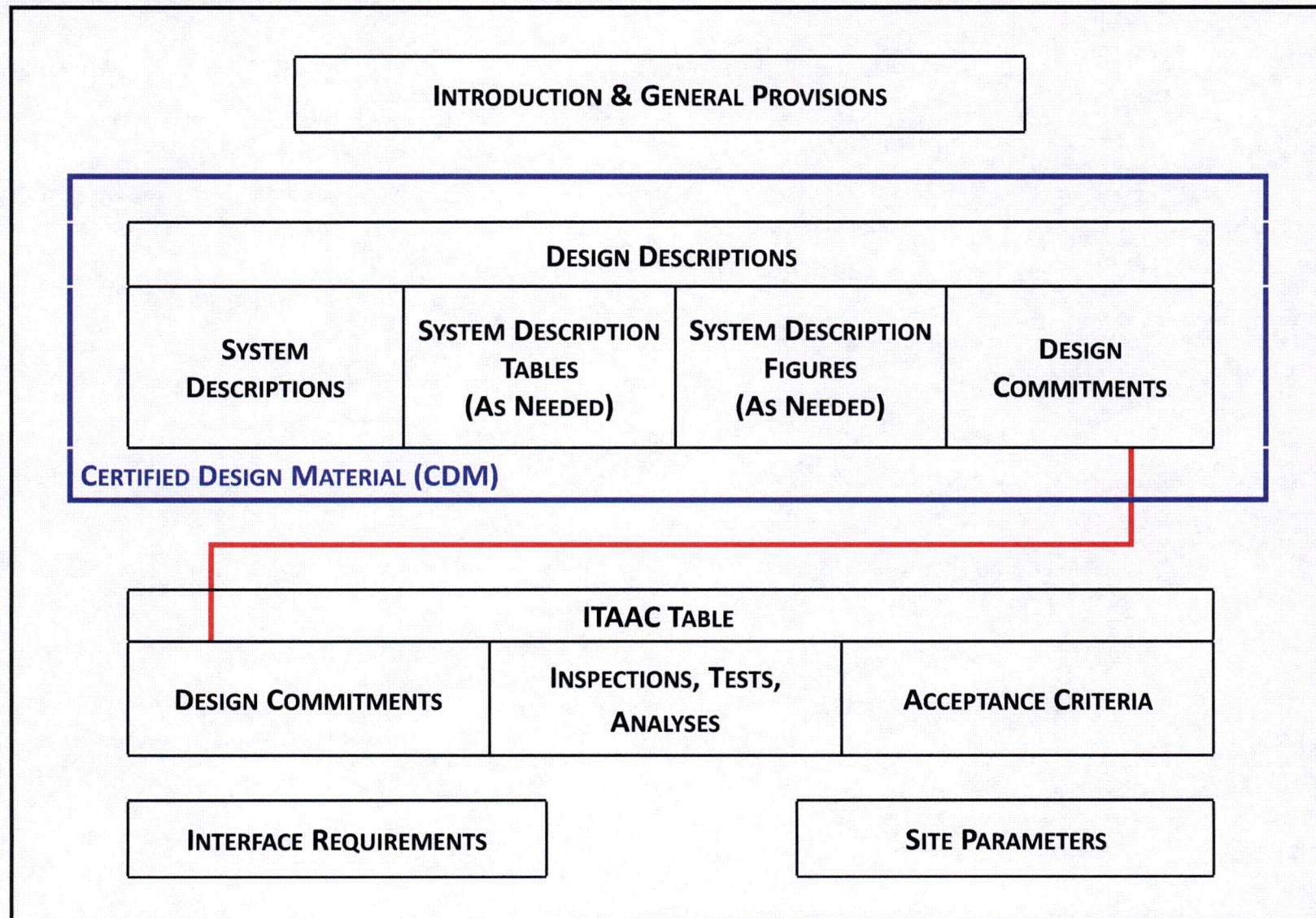
NEI 15-02 was submitted to the NRC for review on May 27, 2015.

Development of NEI 15-02

NEI 15-02 contains guidance to develop Tier 1 information. Each element of the guidance will be discussed in the following slides.

The closed session later today will provide an example of the application of NEI 15-02 guidance to the NuScale Tier 1 Reactor Module Design Description section.

Tier 1 Organization



Tier 1 Definitions from NEI 15-02

Tier 1

Tier 1 means the portion of the design-related information contained in the DCD that is approved and certified by the design certification rule (Tier 1). The Design Descriptions, Interface Requirements, and Site Parameters are derived from Tier 2 information.

Tier 1 Definitions from NEI 15-02

Tier 1 includes:

- i. Definitions and general provisions.
- ii. Design Descriptions.
- iii. Inspections, tests, analyses, and acceptance criteria (ITAAC).
- iv. Significant Site Parameters.
- v. Significant Interface Requirements.

Tier 1 Definitions from NEI 15-02

Design Description

Design Description means that portion of the design that is certified. Design Descriptions consist of a System Description, System Description Tables, System Description Figures, and Design Commitments.

Design Commitment

Design Commitment means that portion of the Design Description that is verified by ITAAC. [NEI 08-01].

NEI 15-02 Table of Contents

1. Introduction
2. Definitions and Acronyms
3. Regulatory Basis
4. First Principles for Tier 1 Design Descriptions and ITAAC
5. Development of Tier 1 Content for Design Certification
6. Development of ITAAC for Design Certification
7. Development of Tier 2 Section 14.3 for Design Certification
8. References

NEI 15-02 Table of Contents

Appendices

Appendix A – Tier 1 Introduction Template

Appendix B – Standardized ITAAC Types For Design Certification Applications

Appendix C – Standardized DCA ITAAC

Appendix D – Tier 1 Design Description and ITAAC Table Template

Appendix E – Example of Tier 1 Design Description And ITAAC Table Section

Appendix F – Example of Tier 2 Section 14.3 ITAAC Discussion

Appendix G – Tier 1 Format Guidelines

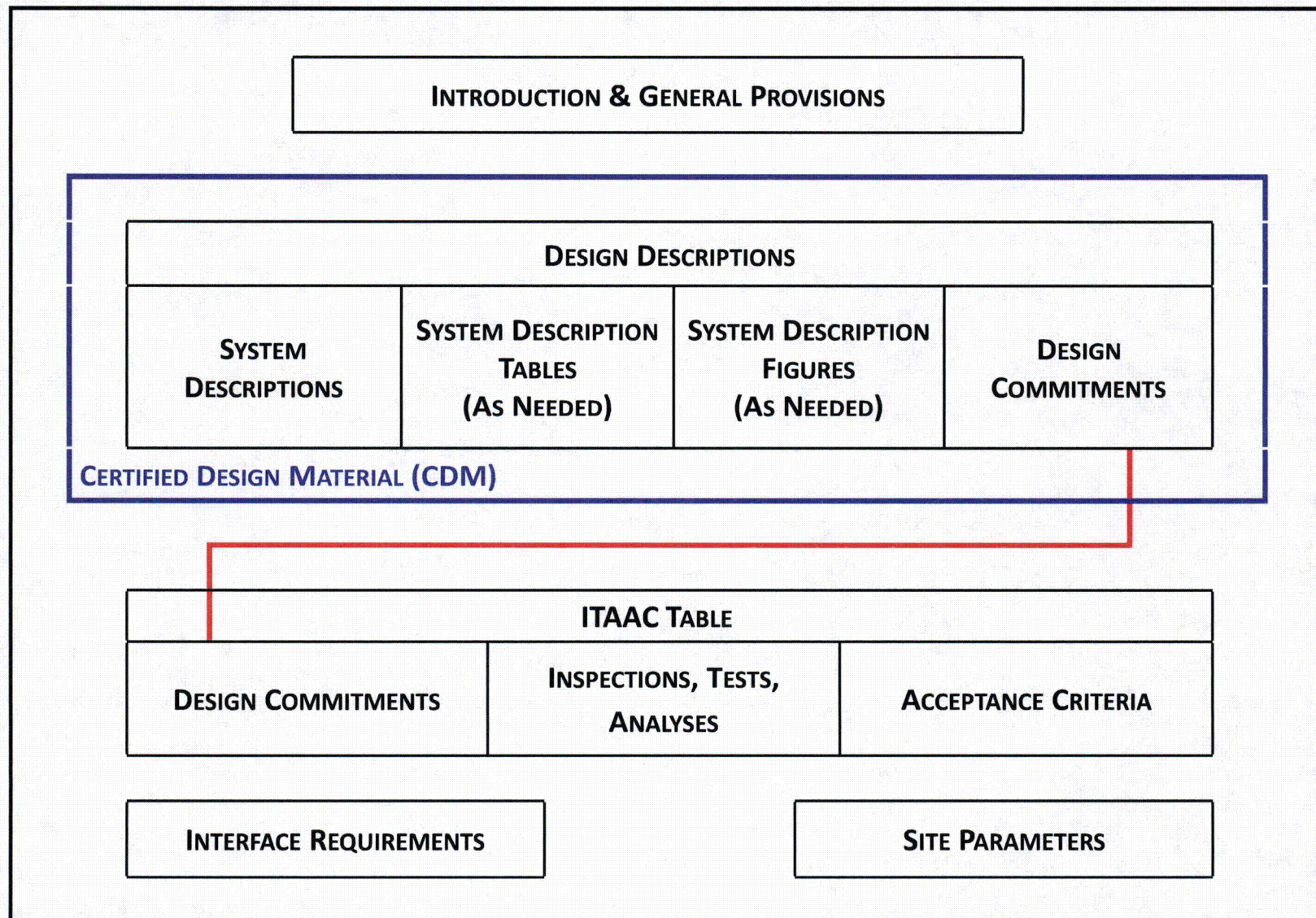
Appendix H – Tier1 and ITAAC Related NRC Policy Papers

NEI 15-02 Guidance to Develop Tier 1

Section 5.1 Tier 1 Content

This section of the document describes the content and organization of Tier 1 as represented on the next slide.

Tier 1 Organization



NEI 15-02 Guidance to Develop Tier 1

Section 5.2 Introduction

The Tier 1 Introduction section provides the following information:

- Definitions required for Tier 1
- General provisions for Design Descriptions
- General provisions for interpreting System Description Tables
- General provisions for interpreting System Description Figures
- General provisions for implementation of ITAAC

NEI 15-02 Guidance to Develop Tier 1

Section 5.2 Tier 1 Introduction

A standard Tier 1 Introduction and General Provisions template is included in NEI 15-02, Appendix A.

- Appendix A is written to allow the template to be copied verbatim into any Tier 1 Introduction and General Provisions section of any design certification application.
- The standardization of the Introduction and General Provisions section eliminates the need for the NRC staff and individual DCA applicants to expend resources to reach agreement on the wording of the section.

NEI 15-02 Guidance to Develop Tier 1

Section 5.3, System Description and Design Commitments

By definition a Design Description consists of

- System Description
- System Description Tables (as applicable)
- System Description Figures (as applicable)
- Design Commitments

Section 5.3 provides detailed guidance on developing the contents of Design Descriptions.

NEI 15-02 Guidance to Develop Tier 1

Section 5.3 Subsections

Section 5.3.1, Tier 1 System Description and Design Commitments

Section 5.3.2, Equipment Identifiers

Section 5.3.3, System Description Tables

Section 5.3.4, System Description Figures

Appendix G

Provides further guidance on developing Design Descriptions

NEI 15-02 Guidance to Develop Tier 1

Design Description Template

A *template* for developing the Tier 1 Design Description and corresponding ITAAC table is contained in NEI 15-02, Appendix D.

NEI 15-02 Guidance to Develop Tier 1

Section 5.4, Design Commitment and ITAAC

- A Design Commitment is the first column of the ITAAC three-column format.
- The three columns are
 - Design Commitments are verbatim with Design Commitments in the Design Description, unless grammatical changes are necessary to conform to the ITAAC formatting
 - Method used to verify Design Commitment (Inspection, Test, and/or Analysis)
 - Acceptance Criteria

NEI 15-02 Tier 1 Standardized ITAAC

Standardized ITAAC Types

- Section 6.1, Standardized ITAAC
- NEI 15-02, Appendix B contains a list of Standardized ITAAC types sorted by design area.
- Standardized ITAAC types can be used as an indexing tool that allows the user to understand the general scope and intent of an ITAAC without reviewing its details in the listing of Standardized ITAAC in Appendix C.
- Standardized ITAAC types also identifies the method to verify the ITAAC (vendor test, as-built inspection, engineering analysis, or preoperational test).

NEI 15-02 Tier 1 Standardized ITAAC

Standardized ITAAC Types

- There are 13 Design Areas related to Standardized ITAAC types. Each Design Area is listed as column headings on Appendix B with the associated Standardized ITAAC types listed under it.
- 27 of the 129 Standardized ITAAC types are not applicable to the NuScale design, because the design feature described in the Design Commitment is not in the NuScale design.

NEI 15-02 Tier 1 Guidance

Interface Requirements

- Interface Requirements are requirements that must be met by the site-specific portions of the completed nuclear power plant that are not within the scope of the certified design. Significant Interface Requirements are specified in Tier 1.
- NuScale does not expect to have any Interface Requirements.

NEI 15-02 Tier 1 Guidance

Site Parameters

- This Tier 1 section establishes the bounding values for significant site parameters that are used as the basis for design certification reviews.
- Tier 1 site parameters are derived from the site parameters discussed in Tier 2, Section 2.0.
- COL applicants perform an evaluation to demonstrate that the actual characteristics of a chosen site are bounded by the design certification site parameters or provide additional analysis to show acceptability of deviations from the design certification site parameters envelope.

NEI 15-02 First Principles to Develop ITAAC

First Principles

- The Standard ITAAC contained in NEI 15-02, Appendix C were developed using the seven (7) First Principles described in the following slides.
- Design-specific ITAAC should be developed using the use the same First Principles.

NEI 15-02 First Principles to Develop ITAAC

First Principles

1. Tier 1 Design Descriptions describe the top-level design features and performance characteristics of the plant.
2. The amount of detail in Tier 1 Design Descriptions is proportional to the safety and risk significance of the top-level design feature or performance characteristic (i.e., a graded approach).
3. Tier 1 Design Descriptions are derived solely from the Tier 2 design information, and ITAAC Design Commitments are derived solely from Tier 1 Design Descriptions.

NEI 15-02 First Principles to Develop ITAAC

First Principles

4. Tier 1 Design Descriptions describe SSC for which construction or installation in the final location will be completed prior to fuel loading, and are expected to be in place for the lifetime of the plant.
 5. ITAAC provide reasonable assurance that the constructed facility conforms with NRC regulations related to design and performance of safety functions.
 6. Tier 1 Design Descriptions reflect the Commission's intent to balance the goal of standardization with the need to provide flexibility to applicants and licensees to make certain changes without prior NRC approval.
 7. ITAAC are a focused subset of construction verification activities.
-

Use of Design Reliability Assurance Program (DRAP) System Functions in Tier 1 Development

DRAP System Functions

Tier 1 Use of System Functions

NEI 15-02 requires that Tier 1 System Descriptions contain
“ A concise description of the system’s or structure’s *safety-related functions, nonsafety-related functions that support safety-related functions, and certain nonsafety risk-significant functions.*”

Method to Identify and Categorize System Functions

NuScale uses the DRAP process to identify, categorize, and approve system functions.

DRAP System Functions

System Function Categorizations

NuScale system functions are categorized into one of the following safety/risk categories:

- Safety-related, risk-significant (A1)
- Safety-related, not risk-significant (A2)
- Nonsafety-related, risk-significant (B1)
- Nonsafety-related, not risk-significant (B2)

DRAP System Functions

NuScale ITAAC for Safety-Related System Functions

ITAAC for NuScale safety-related (A1 and A2) system functions will be developed by using one or more of the following methods:

- Using the Standardized ITAAC listed in NEI 15-02, Appendix B.
- Modifying the NEI 15-02, Appendix B Standardized ITAAC as necessary to satisfy a design-specific design feature similar to the design feature contained in Appendix B.
- Providing a design-specific ITAAC for safety-related design features not contained in NEI 15-02, Appendix B.

DRAP System Functions

NuScale ITAAC for Safety-Related System Functions

All Standardized ITAAC for NuScale safety-related system functions are contained within the following Design Areas listed in NEI 15-02, Appendix B:

- Reactor Coolant Pressure Boundary (RCPB)
- Containment Pressure Boundary
- Seismic Category I Structures
- Safety-Related Equipment Qualification
- Safety-Related Mechanical Equipment
- Class 1E Protection System (Reactor Trip and ESF actuation)

DRAP System Functions

NuScale ITAAC for Nonsafety-Related, Not Risk-Significant System Functions

ITAAC for NuScale nonsafety-related, not risk-significant (B2) system functions are selected from the ITAAC within the following Design Areas listed in NEI 15-02, Appendix B:

- New and Spent Fuel Storage
- Main Control Room Habitability
- Nonsafety-Related SSC Providing Protection of Safety-Related SSC
- Nonsafety-Related SSC Providing Radiation Protection
- Human Factors Engineering

DRAP System Functions

NuScale ITAAC for Nonsafety-Related, Risk-Significant System Functions

NuScale nonsafety-related, risk-significant (B1) system functions are identified using NuScale design-specific probabilistic risk assessment (PRA) and input from a DRAP expert panel consisting of nuclear industry personnel with diverse experience in the industry.

For NuScale design, the NEI 15-02 Design Area “Class 1E Power for Safety-Related Equipment” is modified to “Power for Nonsafety-Related Risk-Significant Equipment”.

DRAP System Functions

NuScale ITAAC for Nonsafety-Related, Risk-Significant System Functions

ITAAC for NuScale nonsafety-related, risk-significant (B1) system functions will be developed by using one or more of the following methods:

- Using the Standardized ITAAC listed in NEI 15-02, Appendix B, just as was done for A1 and A2 system functions.
- Modifying the NEI 15-02, Appendix B Standardized ITAAC as necessary to satisfy a design-specific design feature similar to the design feature contained in Appendix B.
- Providing a design-specific ITAAC for nonsafety-related, risk-significant design features not contained in NEI 15-02, Appendix B.

DRAP System Functions

NEI 15-02 Standardized ITAAC Not Applicable to NuScale Design

All ITAAC listed in NEI 15-02, Appendix B will be in NuScale Tier 1 *except* for those ITAAC related to design features not in the NuScale design.

A review of NEI 15-02, Appendix B will be conducted in the closed session this afternoon. NuScale will identify the ITAAC contained in NEI 15-02, Appendix B that are not applicable to NuScale design, because the design feature is not in the design.

Module-Specific vs. Shared Systems

Module-Specific vs. Shared Systems

NuScale System Types

A NuScale 12-module plant design contains systems that are classified as one of the following types of systems:

- Module-specific
- 6A or 6B (shared system)
- 00 (shared system)

Module-Specific Systems

Module-specific systems support only one module.

- Each module will contain a module-specific system unique to that module, identified by that module number (1-12).
- There are no cross-connections between module-specific systems.
- If a module-specific system requires an ITAAC, then that ITAAC will be completed with that module.

Module-Specific Systems

Module-specific systems can be identified by one of the following attributes:

- Sub-systems of the reactor module system.
- Systems that directly support and connect to the reactor module system.
- Systems that directly support the secondary thermal cycle, but are not a 6A or 6B system.

Module-Specific Systems

Sub-systems of the Reactor Module System

- Containment system
- Reactor coolant system
- Emergency core cooling system
- Decay heat removal system
- Pressurizer
- Steam generator system
- Reactor vessel internals
- Control rod drive system
- Neutron monitoring system
- In-core instrumentation system

Module-Specific Systems

Sub-systems of the Reactor Module System

- All sub-systems of the reactor module system listed on the previous slide will have applicable ITAAC.
- All reactor module system ITAAC will be addressed in the Tier 1 Reactor Module System section.

Module-Specific Systems

Systems that Directly Support and Connect to the Reactor Module System

- Chemical and volume control system
- Containment evacuation system
- Module protection system
- Module control system

Note: The containment flood and drain system connects directly to the reactor module, but it is a 6A and 6B system, because there are two identical systems, one that supports modules 1-6 and one that supports modules 7-12.

Module-Specific Systems

Systems that Directly Support and Connect to the Reactor Module System

Evaluations completed to date have concluded that the chemical and volume control system and the module protection system will have ITAAC.

Module-Specific Systems

Systems that Directly Support the Secondary Thermal Cycle

- Main steam system
- Turbine generator system
- Feedwater treatment
- Extraction steam system
- Heater vents and drains system
- Condenser heat removal system

Module-Specific Systems

Secondary Thermal Cycle (BOP) Module-Specific Systems

- Evaluations completed to date have concluded that the turbine generator system will have ITAAC.
- Note: The containment isolation valves for main steam and feedwater are within the containment system boundary.

Shared Systems

6A, 6B, and 00 NuScale Systems

- 6A and 6B systems are identical in design, but support different groups of systems within the plant. 6A systems support modules 1-6, and 6B systems support modules 7-12.
- 00 systems support all 12 modules of the NuScale 12-module plant.

Shared Systems

Building Systems (6A, 6B, or 00)

- NuScale design assigns system numbers to buildings. With the exception of the turbine buildings, all buildings of the NuScale design are classified as 00 systems.
- Turbine buildings are 6A and 6B systems.
- There are two turbine buildings. The north turbine building supports modules 1-6, and the south turbine building supports modules 7-12 systems.

Shared Systems

6A and 6B Systems

- With two exceptions, all major equipment of 6A and 6B systems are located in the 6A north turbine building or the 6B south turbine building.
 - The circulating water systems are located with the cooling towers.
 - The 6A and 6B containment flooding and drain systems are located in the reactor building where they support modules 1-6 and modules 7-12, respectively.
 - The backup power supply system 6A and 6B 480VAC buses are located in the yard.

Shared Systems

6A and 6B Systems

- Condensate polisher resin regeneration system
- Turbine lube oil storage system
- Auxiliary boiler system
- Turbine lube oil storage system
- Circulating water system
- Site cooling water system
- Service air system
- Instrument air system
- BOP drain system
- Turbine building HVAC
- Turbine building crane
- Containment flooding and drain system
- Backup power supply system

Shared Systems

6A and 6B System ITAAC

- Evaluations have not been completed on which 6A and 6B systems will require ITAAC.

Shared Systems

00 Systems

- 00 systems represent approximately 60% (65 of 115) of NuScale systems.
- There is no general characterization to describe all 00 systems.
- Some 00 systems can be characterized as belonging to a 00 “type” or “group”.
- The remainder of 00 systems are not characterized as belonging to a type or group of systems (only one NuScale system of its type).

Shared Systems

00 Systems

- Buildings (with the exception of the 6A and 6B turbine buildings).
- Component cooling systems
- Makeup water systems
- HVAC/ventilation systems (with the exception of the 6A and 6B turbine HVAC systems)
- Electrical systems
- Control systems
- Radwaste systems
- Fuel storage systems
- Air and gas systems
- Unique systems

Shared Systems

00 Systems

- Number of 00 systems by group type or group:

00 System Type	00 Systems in Type
Buildings	10
Component Cooling Systems	6
Makeup Water Systems	4
HVAC/Ventilation Systems	7
Electrical Systems	10
Control Systems	2
Radwaste Systems	3
Fuel Storage Systems	2
Air and Gas Systems	3
Non-Grouped Systems (only one NuScale system of its type)	18
Total 00 Systems	65

Shared Systems

00 System ITAAC

00 systems provides a common function to supported systems in multiple modules.

If the construction of all supported systems are finished at the time of the 00 system ITAAC completion, then a 00 system ITAAC may be completed once for the plant.

Otherwise, the completion of the 00 system ITAAC must be done in phases.

NuScale Review of DSRS Sections 14.3.X

NuScale DSRS Sections 14.3.X Comments

NuScale has provided to the NRC comments on the following draft DSRS sections:

- DSRS 14.3.2, Structural and Systems Engineering
- DSRS 14.3.4, Reactor Systems
- DSRS 14.3.5, Instrument and Controls
- DSRS 14.3.6, Electrical Systems
- DSRS 14.3.7, Plant Systems
- DSRS 14.3.8, Radiation Protection

In addition, NuScale has provided integrated comments for items that address similar guidance in multiple DSRS sections.

NuScale DSRS Sections 14.3.X Comments

The following discussion on the NuScale DSRS 14.3.X comments is not meant to address all comments, but instead summarize what NuScale believes is the most important NuScale comments.

NuScale DSRS Sections 14.3.X Comments

Incorporation of NEI 15-02 Improvements

The NuScale DSRS does not reflect or incorporate the improvements, simplifications, and enhancements that are in NEI 15-02 and which had been discussed with the NRC in numerous public meetings over 18 months of interactions between 2013 and 2015.

NuScale has made multiple DSRS comments that specific sections of Chapter 14 DSRS should reference NEI 15-02.

NuScale DSRS Sections 14.3.X Comments

Additional DSRS Sections Required

DSRS sections were not provided for the following SRP sections

- 14.3, Inspections, Tests, Analysis and Acceptance Criteria
- 14.3.3, Piping Systems and Components
- 14.3.11, Containment Systems

A complete and adequate review of NuScale DSRS cannot be performed until the listed SRP sections are provided as NuScale DSRS. The listed SRP sections are directly referenced in some of the DSRS sections and/or provide guidance directly related to NuScale system design.

NuScale DSRS Sections 14.3.X Comments

Increase in ITAAC Scope - Minimization of Contamination

A significant increase in Tier 1 and ITAAC scope was proposed by the NRC with respect to the existing SRP when DSRS 14.3.2, DSRS 14.3.4, and DSRS 14.3.8 introduced the NRC regulation of 10 CFR 20.1406 and the guidance of RG 4.21, “Minimization of Contamination and Radioactive Waste Generation: Life-Cycle Planning.” The increased scope does not conform to the design intent of DSRS and is inconsistent with ITAAC First Principles as presented in NEI 15-02 and public NEI/NRC ITAAC meetings from 2013-2015.

NuScale DSRS Sections 14.3.X Comments

Increase in ITAAC Scope - Minimization of Contamination

- DSRS 14.3.2, Acceptance Criteria #11
- DSRS 14.3.2, Technical Rationale #3
- DSRS 14.3.4, Acceptance Criteria #6
- DSRS 14.3.4, Technical Rationale #8
- DSRS 14.3.8, Acceptance Criteria #3
- DSRS 14.3.8, Review Procedures #11

Note: DSRS Sections 14.3.5, 14.3.6, and 14.3.7 did not invoke the additional ITAAC scope of Minimization of Contamination.

NuScale DSRS Sections 14.3.X Comments

Deleted Standard Review Plan Guidance

Guidance common to multiple 14.3.x SRP sections was deleted in DSRS 14.3.5 but not in other DSRS sections.

- DSRS 14.3.5 deleted SRP Section 14.3.5, *III. Areas of Review/ For a COL application.*
- DSRS 14.3.5 deleted SRP 14.3.5, *III. Areas of Review/ COL Action Items and Certification Requirements and Restrictions*

Equivalent guidance for DSRS Sections 14.3.2, 14.3.4, 14.3.6, 14.3.7, and 14.3.8 were not deleted.

NuScale DSRS Sections 14.3.X Comments

Deleted Standard Review Plan Guidance

Guidance common to multiple 14.3.x SRP sections was deleted in DSRS 14.3.5 but not in other DSRS sections.

DSRS 14.3.5 deleted the following sentence from SRP 14.3.5, *Evaluation Findings* guidance. The guidance is not applicable to Tier 1 information.

“A finding similar to that in the Evaluation Findings of SRP Section 14.3 should be provided in a separate section of the SER.”

The above sentence should be deleted from 14.3.2, 14.3.4, 14.3.6, 14.3.7, and 14.3.8

NuScale DSRS Sections 14.3.X Comments

Increase in ITAAC Scope - Programmatic Requirements

Guidance added as *III Review Procedures, item 1* in DSRS Sections 14.3.2, 14.3.4, 14.3.5, 14.3.6, and 14.3.7 and DSRS 14.3.4 Acceptance Criteria #8 should be deleted.

- The new guidance states in part “The design-basis capabilities of specific SSCs would be verified where applicable as part of completion of the applicable ITAAC.” This guidance is applicable to Tier 2, not Tier 1.
- The new guidance states in part “Examples of such programs that may be relevant to the graded approach for these SSCs include.” The included list contains a description of COL programs (see next slide). This guidance is applicable to Tier 2, not Tier 1.

NuScale DSRS Sections 14.3.X Comments

Increase in ITAAC Scope - Programmatic Requirements

- 10 CFR Part 50, Appendix A, General Design Criteria (GDC), Overall Requirements, Criteria 1 through 5
- 10 CFR Part 50, Appendix B, Quality Assurance (QA) Program
- 10 CFR 50.49, Environmental Qualification of Electrical Equipment (EQ) Program
- 10 CFR 50.55a, Code Design, Inservice Inspection and Inservice Testing (ISI/IST) Programs
- 10 CFR 50.65, Maintenance Rule requirements
- Reliability Assurance Program (RAP)
- 10 CFR 50.36, Technical Specifications
- Availability Controls for SSCs Subject to Regulatory Treatment of Non-Safety Systems (RTNSS)
- Initial Test Program (ITP)
- Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC)

This list of examples is not intended to be all-inclusive. It is the responsibility of the technical reviewers to determine whether the information in the application, including the degree to which the applicant seeks to rely on such selected programs and guidance, **demonstrates that all acceptance criteria have been met to support the safety finding for a particular SSC.**"

NuScale DSRS Sections 14.3.X Comments

Inappropriate Tier 1 Guidance

The following DSRS sections provide inappropriate (and inconsistent) guidance for Tier 2* information:

- DSRS 14.3.2 in the DSRS Acceptance Criteria section
- DSRS 14.3.4 in the DSRS Acceptance Criteria and Review Procedures sections
- DSRS 14.3.5 in the Review Procedures section

The reference to Tier 2* should be deleted from the DSRS, because the guidance for Tier 2* information is not appropriate for Tier 1 guidance. Note that DSRS Sections 14.3.6, 14.3.7, and 14.3.8 do not contain references to Tier 2*.

NuScale DSRS Sections 14.3.X Comments

Inappropriate Tier 1 Guidance

- DSRS Sections 14.3.2, 14.3.4, 14.3.5, 14.3.6, 14.3.7 added guidance on the following subjects in *III Review Procedures, item 2*.
 - Proposed technical resolution of unresolved safety issues and medium- and high-priority generic safety issues
 - Operating experience insights
 - Three Mile Island requirements

This new guidance is not appropriate for Tier 1 and should be deleted. The SRP requires these subjects to be addressed in Tier 2.

NuScale DSRS Sections 14.3.X Comments

Inappropriate Tier 1 Guidance

The Review Procedures section of DSRS Sections 14.3.2, 14.3.4, and 14.3.8 added guidance for Interim Staff Guidance (ISG). There was no new guidance for ISG in DSRS Sections 14.3.5, 14.3.6, or 14.3.7.

The new guidance on ISG is not appropriate for Tier 1 and should be deleted. The SRP requires the related ISG to be addressed in Tier 2.

NuScale DSRS Sections 14.3.X Comments

Inappropriate Tier 1 Guidance

- DSRS 14.3.8, “The reviewer should ensure that the guidance contained in the issued final Interim Staff Guidance (ISG) documents associated with applications for new reactors is followed:

ISG on Post-Combined License Commitments (ESP/DC/COL-ISG-15).”

NuScale DSRS Sections 14.3.X Comments

Inconsistent Guidance

DSRS sections provide the following inconsistent guidance in Areas of Review for a DC Applicant. Examples are

- DSRS 14.3.2, “The interface requirements are required to be verified by ITAAC provided in the COL.”
- DSRS 14.3.4, “The staff reviews the justification that compliance with the interface requirements is verifiable through ITAAC. The staff also review the method that is to be used for verification of the interface requirements.”
- DSRS 14.3.6 and 14.3.7, “The method to be used for verification of interface requirements must be included as part of the design certification ITAAC.”

NuScale DSRS Sections 14.3.X Comments

Inconsistent Guidance (con't)

The guidance for ITAAC verification contained in *Areas of Review for a DC Applicant* should be standardized in DSRS Sections 14.3.2, 14.3.4, 14.3.5, 14.3.6, 14.3.7, and 14.3.8.

NuScale DSRS Sections 14.3.X Comments

SSCs Not Applicable to NuScale Design

Several terms are used throughout the NuScale DSRS sections that are not applicable to the NuScale design including:

- Suppression pool
- Loose parts monitoring system
- Containment atmosphere cleanup system
- Service building
- Prototype

References to these SSCs should be deleted from the NuScale DSRS sections.

NuScale DSRS Sections 14.3.X Comments

DSRS References

Numerous references included in the DSRS Reference sections are not cited or discussed in the associated DSRS. Most of the non-cited references are not relevant to the subject matter of the DSRS.

DSRS Section	Total # References	# References N/A to Section
14.3.2	25	11
14.3.4	25	11
14.3.5	11	0
14.3.6	24	22
14.3.7	9	5
14.3.8	24	21

Reactor Module ITAAC

Reactor Module ITAAC

The ***draft*** of the NuScale Tier 1 Reactor Module section will be used to compare the content of the Reactor Module section to the guidance provided in NEI 15-02.

All aspects of the Reactor Module section are important. An objective is to focus on the process and methods that NuScale used to develop the Reactor Module section in order to promote discussion between the NRC staff and NuScale.

Of particular importance is the use of NEI 15-02 Standardized ITAAC to identify Reactor Module ITAAC.

Reactor Module ITAAC

Reactor Module Piping Systems Outside Containment

- All containment system piping from disconnect flange to containment isolation valves

Reactor Module Piping Systems Inside Containment

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}}^{2(a) (c)}

Reactor Module ITAAC

Development of NuScale System Functions

- System functions were developed for the reactor module by a subject matter expert and reviewed by multiple disciplines as discussed in the DRAP portion of this meeting earlier today.
- Reactor module system functions were approved by the Design Reliability Assurance Process Expert Panel.

Reactor Module ITAAC

Containment System (CNT) Components

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}}^{2(a) (c)}

Reactor Module ITAAC

Reactor Coolant System (RCS) Components

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}}^{2(a) (c)}

Reactor Module ITAAC

Reactor Vessel Internals (RVI) (Table 2.1.1-2)

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}}^{2(a) (c)}

Reactor Module ITAAC

Control Rod Drive System (CRDS) Components

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}}^{2(a) (c)}

Reactor Module ITAAC

Decay Heat Removal System (DHR) Components

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Reactor Module ITAAC

Emergency Core Cooling System (ECC) Components

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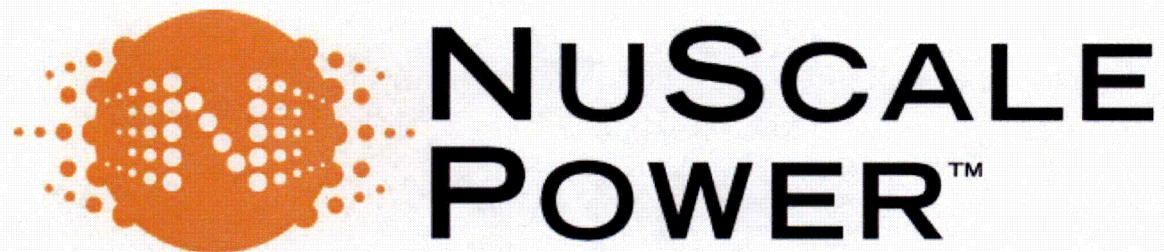
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Summary

- NuScale uses the NuScale Design Reliability Assurance Program process to identify, categorize, and approve system functions, which form the basis for developing Tier 1 Design Descriptions and ITAAC.
- NuScale Tier 1 Design Descriptions and ITAAC will be developed using the guidance in NEI 15-02.
- The resolution of NuScale comments on the NuScale DSRS Section 14.3.X will ensure timely and efficient development of Tier 1 and corresponding NRC review of the NuScale Tier 1.

Path Forward

- NEI Task Force with participation by NuScale resolve NRC comments on NEI 15-02.
- NRC and NuScale resolve comments on NuScale DSRS Section 14.3.X.



*6650 SW Redwood Lane, Suite 210
Portland, OR 97224
503.715.2222*

*1100 NE Circle Blvd., Suite 200
Corvallis, OR 97330
541.360.0500*

*11333 Woodglen Ave., Suite 205
Rockville, MD 20852
301.770.0472*

*6060 Piedmont Row Drive South, Suite 600
Charlotte, NC 28287
704.526.3413*

<http://www.nuscalepower.com>

