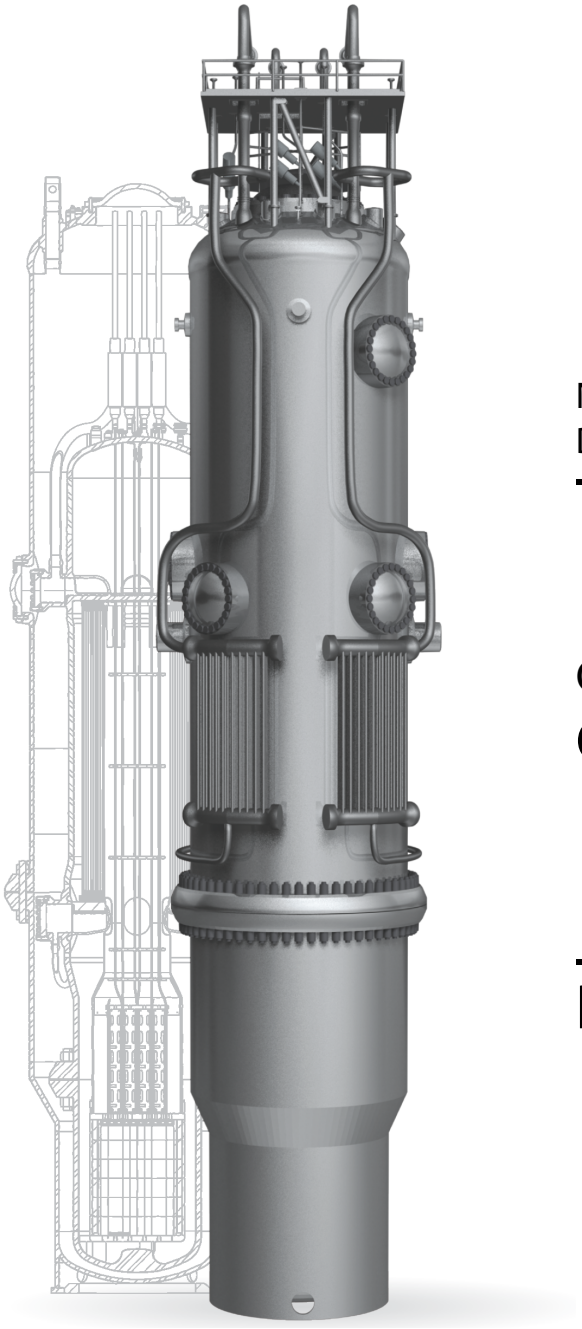

NuScale Standard Plant
Design Certification Application

Chapter Thirteen
Conduct of Operations

PART 2 - TIER 2

Revision 1
March 2018

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CHAPTER 13 CONDUCT OF OPERATIONS

13.1 Organizational Structure

13.1.1 Management and Technical Support Organization

COL Item 13.1-1: A COL applicant that references the NuScale Power Plant design certification will provide a description of the corporate or home office management and technical support organization, including a description of the qualification requirements for (1) each identified position or class of positions that provide technical support to the onsite operating organization, and (2) individuals holding management and supervisory positions in organizational units providing technical support to the onsite operating organization.

13.1.2 Operating Organization

COL Item 13.1-2: A COL applicant that references the NuScale Power Plant design certification will provide a description of the proposed structure, functions, and responsibilities of the onsite organization necessary to operate and maintain the plant. The proposed operating staff shall be consistent with the minimum licensed operator staffing requirements in Section 18.5.

13.1.3 Qualifications of Nuclear Plant Personnel

COL Item 13.1-3: A COL applicant that references the NuScale Power Plant design certification will provide a description of the qualification requirements for each management, operating, technical, and maintenance position described in the operating organization.

13.2 Training

COL Item 13.2-1: A COL applicant that references the NuScale Power Plant design certification will provide a description and schedule of the initial training and qualification as well as requalification programs for reactor operators and senior reactor operators.

COL Item 13.2-2: A COL applicant that references the NuScale Power Plant design certification will provide a description and schedule of the non-licensed plant staff training programs including initial training, periodic retraining, and qualification requirements.

13.3 Emergency Planning

The NuScale Power Plant design includes design features, facilities, and equipment that are usable for up to 12 NuScale Power Modules to support emergency response functions.

A technical support center (TSC) is provided, compliant with the design requirements of NUREG-0696, Functional Criteria for Emergency Response Facilities. The TSC is located on the 100-ft elevation of the control building, which is a Seismic Category I structure below the 120-ft elevation as discussed in Section 3.8.4.1.2. When using the shortest designed direct route, the walking time between the entrance of the control room and the entrance of the TSC does not exceed 2 minutes. The TSC can accommodate staffing levels of at least 25 persons (20 utility and 5 NRC) at 75 ft^2 per person. The TSC includes 2500 ft^2 for a technical evaluation room, and an additional 1000 ft^2 for storage, three offices, and two conference rooms. The design ensures that personnel are protected from radiological hazards, including direct radiation and airborne radioactivity from in-plant sources under accident conditions (i.e., maximum of 5 rem TEDE for the duration of the accident). In the event of a loss of ventilation, or if the TSC becomes otherwise uninhabitable, personnel are evacuated and the TSC functions are transferred to a location designated by the emergency plan (COL Item 13.3-3). Heating, ventilation and air conditioning (HVAC) for the TSC is provided by the control room HVAC system and discussed further in Section 9.4.1.

The TSC is equipped with voice communications systems, which provide communications between the TSC and plant, local, and offsite emergency response facilities, the NRC, and local and state operations centers. Additional information is provided in Section 9.5.2.2.

The TSC includes engineering workstations as described in Section 7.2.13.7.

The TSC engineering workstations and communications equipment are supplied with power from the normal DC power system (EDNS). As discussed in Section 8.3.2.1.2, the EDNS includes battery backup power sources and the EDNS may also be provided backup power from the backup power supply system.

An emergency response data system compliant with Section VI of 10 CFR 50 Appendix E, provides a direct near-real-time electronic data link of selected parameters between the onsite computer system and the NRC Operations Center in the event of an emergency.

COL Item 13.3-1: A COL applicant that references the NuScale Power Plant design certification will provide a description of the onsite operational support center (OSC) including the direct communication system or systems between the OSC and the control room.

COL Item 13.3-2: A COL applicant that references the NuScale Power Plant design certification will provide a description of an emergency operations facility for management of overall licensee emergency response and which complies with the guidance in NUREG-0696, “Functional Criteria for Emergency Response Facilities," NUREG-0737 Supplement 1, "Clarification of TMI Action Plan Requirements - Requirements for Emergency Response Capability," and NSIR/DPR-ISG-01, "Interim Staff Guidance - Emergency Planning for Nuclear Power Plants.”

COL Item 13.3-3: A COL applicant that references the NuScale Power Plant design certification will provide a comprehensive emergency plan in accordance with 10 CFR 50.47, 10 CFR 50, Appendix E, 10 CFR 52.48, and 10 CFR 52.79(a)(21).

13.4 Operational Programs

COL Item 13.4-1: A COL applicant that references the NuScale Power Plant design certification will provide site-specific information, including implementation schedule, for operational programs:

- Inservice inspection programs (refer to Section 5.2, Section 5.4, and Section 6.6)
- Inservice testing programs (refer to Section 3.9 and Section 5.2)
- Environmental qualification program (refer to Section 3.11)
- Pre-service inspection program (refer to Section 5.2 and Section 5.4)
- Reactor vessel material surveillance program (refer to Section 5.3)
- Pre-service testing program (refer to Section 3.9.6, Section 5.2, and Section 6.6)
- Containment leakage rate testing program (refer to Section 6.2)
- Fire protection program (refer to Section 9.5)
- Process and effluent monitoring and sampling program (refer to Section 11.5)
- Radiation protection program (refer to Section 12.5)
- Non-licensed plant staff training program (refer to Section 13.2)
- Reactor operator training program (refer to Section 13.2)
- Reactor operator requalification program (refer to Section 13.2)
- Emergency planning (refer to Section 13.3)
- Process control program (PCP) (refer to Section 11.4)
- Security (refer to Section 13.6)
- Quality assurance program (refer to Section 17.5)
- Maintenance rule (refer to Section 17.6)
- Motor-operated valve testing (refer to Section 3.9)
- Initial test program (refer to Section 14.2)

13.5 Plant Procedures

Administrative and operating procedures are utilized by the operating organization (plant staff) to ensure that routine operating, off-normal, and emergency activities are conducted in a safe manner.

13.5.1 Administrative Procedures

COL Item 13.5-1: A COL applicant that references the NuScale Power Plant design certification will describe the site-specific procedures that provide administrative control for activities that are important for the safe operation of the facility consistent with the guidance provided in Regulatory Guide 1.33, Revision 3.

COL Item 13.5-4: A COL applicant that references the NuScale Power Plant design certification will provide a plan for the development, implementation, and control of administrative procedures, including preliminary schedules for preparation and target dates for completion. Additionally, the COL applicant will identify the group within the operating organization responsible for maintaining these procedures.

13.5.2 Operating and Maintenance Procedures

13.5.2.1 Operating and Emergency Operating Procedures

Generic technical guidelines for emergency operating procedure development that are specific to the NuScale design are provided in Reference 13.5-1. These generic technical guidelines provide the basis for the Plant Specific Technical Guidelines identified in COL Item 13.5-7.

COL Item 13.5-2: A COL applicant that references the NuScale Power Plant design certification will describe the site-specific procedures that operators use in the main control room and locally in the plant, including normal operating procedures, abnormal operating procedures, and emergency operating procedures. The COL applicant will describe the classification system for these procedures, and the general format and content of the different classifications.

COL Item 13.5-5: A COL applicant that references the NuScale Power Plant design certification will provide a plan for the development, implementation, and control of operating procedures, including preliminary schedules for preparation and target dates for completion. Additionally, the COL applicant will identify the group within the operating organization responsible for maintaining these procedures.

COL Item 13.5-6: Not used.

COL Item 13.5-7: A COL applicant that references the NuScale Power Plant design certification will provide a plan for the development, implementation, and control of emergency operating procedures (EOPs), including preliminary schedules for preparation and target dates for completion. Included in the submittal is the Procedures Generation Package, consisting of the following:

- Plant-Specific Technical Guidelines, which are guidelines based on analysis of transients and accidents that are specific to the COL applicant's plant design and operating philosophy.
- A plant-specific writer's guide that details the specific methods to be used by the COL applicant in preparing EOPs based on the Plant-Specific Technical Guidelines.
- A description of the program for verification and validation of the EOPs.
- A description of the program for training operators on the EOPs.

Additionally, the COL applicant will identify the group within the operating organization responsible for maintaining these procedures.

13.5.2.2 Maintenance and Other Operating Procedures

COL Item 13.5-3: A COL applicant that references the NuScale Power Plant design certification will describe the site-specific maintenance and other operating procedures, including how these procedures are classified, and the general format and content of the different classifications. The categories of procedures listed below should be included:

- plant radiation protection procedures
- emergency preparedness procedures
- calibration and test procedures
- chemical-radiochemical control procedures
- radioactive waste management procedures
- maintenance and modification procedures
- material control procedures
- plant security procedures

COL Item 13.5-8: A COL applicant that references the NuScale Power Plant design certification will provide a plan for the development, implementation, and control of maintenance and other operating procedures, including preliminary schedules for preparation and target dates for completion. Additionally, the COL applicant will identify what group or groups within the operating organization have the responsibility for maintaining and following these procedures.

13.5.3 References

13.5-1 NuScale Power, LLC, "NuScale Generic Technical Guidelines", TR-1117-57216, Revision 0, November 2017

13.6 Security

13.6.1 Physical Security

The NuScale Power Plant physical security design provides the capabilities to detect, assess, impede, and delay threats up to and including the design basis threat, and to provide for defense-in-depth through the integration of systems, technologies, and equipment. The design of physical security systems within the nuclear island and structures is described in Technical Report TR-0416-48929 (Reference 13.6-1), which is incorporated by reference to this FSAR.

COL Item 13.6-1: A COL applicant that references the NuScale Power Plant design certification will provide the following:

- Security Plans (Physical Security, Security Training and Qualification, and Safeguards Contingency Plans)
- proposed site security provisions to be implemented during construction and as modules are completed and become operational of a new plant
- portions of the physical security system not located within the nuclear island and structures

COL Item 13.6-2: A COL applicant that references the NuScale Power Plant design certification will be responsible for the requirements described in Table 5-1 of TR-0416-48929, Rev 0 NuScale Design of Physical Security Systems.

The central alarm station provides:

- continuous communications with onsite and offsite resources via radio or microwave-transmitted two-way voice communication
- conventional telephone service between local law enforcement authorities and the site
- a system for continuous communication with the control room

COL Item 13.6-3: A COL applicant that references the NuScale Power Plant design certification will provide a secondary alarm station that is equal and redundant to the central alarm station.

Independent power sources for alarm annunciation equipment and non-portable communication equipment are provided. Reference 13.6-1 provides additional information on communications systems associated with physical security.

COL Item 13.6-4: A COL applicant that references the NuScale Power Plant design certification will provide inspections, tests, analyses, and acceptance criteria for site-specific physical security structures, systems, and components (SSC).

13.6.2 Access Authorization - Operational Program

COL Item 13.6-5: A COL applicant that references the NuScale Power Plant design certification will provide a description of the access authorization program.

13.6.3 Cyber Security Plan

COL Item 13.6-6: A COL applicant that references the NuScale Power Plant design certification will provide a Cyber Security Plan.

13.6.4 References

13.6-1 NuScale Power, LLC, "NuScale Design of Physical Security Systems", TR-0416-48929, Revision 0

13.7 Fitness for Duty

13.7.1 Fitness for Duty - Operation

COL Item 13.7-1: A COL applicant that references the NuScale Power Plant design certification will provide a description of the applicant's 10 CFR 26 compliant fitness-for-duty (FFD) program for plant operations.

13.7.2 Fitness for Duty - Construction

COL Item 13.7-2: A COL applicant that references the NuScale Power Plant design certification will provide a description of the applicant's 10 CFR 26 compliant fitness-for-duty (FFD) program for construction.