Response to Request for Additional Information 9843 (eRAI 9843)

QUESTIONS
03.09.06-1

Appendix A, "General Design Criteria for Nuclear Power Plants," in 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," contains several general design criteria related to the functional qualification of active mechanical equipment important to safety, including valves, in nuclear power plants. Holtec Topical Report HI-2201064 (Revision 2, dated March 4, 2021) describes a wide range of valves and their safety functions that are part of the SMR-160 reactor design.

Section 7.0, "Regulatory Evaluation as Pertains to Elimination of Large Break LOCA and Establishment of LOCA Acceptance Criteria," of the Holtec Topical Report includes provisions for the implementation of specific sections of the NRC Standard Review Plan (SRP) NUREG-0800 for certain structures, systems, and components in the SMR-160 reactor. However, Section 7.0 of the Holtec Topical Report does not describe the implementation of SRP Section 3.9.6, "Functional Design, Qualification, and Inservice Testing Programs for Pumps, Valves, and Dynamic Restraints," and SRP Section 5.2.2, "Overpressure Protection," for valves to be used in the SMR-160 reactor. Specifically, as outlined in SRP Section 3.9.6, acceptance criteria for the qualification of Holtec's proposed pumps and valves should be described in accordance with the guidance in the American Society of Mechanical Engineers (ASME) Standard QME-1, "Qualification of Active Mechanical Equipment Used in Nuclear Facilities," as accepted in NRC Regulatory Guide 1.100, "Seismic Qualification of Electrical and Active Mechanical Equipment and Functional Qualification of Active Mechanical Equipment for Nuclear Power Plants." Additionally, as outlined in SRP Section 5.2.2, acceptance criteria for the specifications for the overpressure protection of Holtec's proposed valves should also be described in accordance with the guidance.

As such, the NRC staff requests that Holtec clarify the acceptance criteria and methods in the topical report for meeting Appendix A, "General Design Criteria for Nuclear Power Plants," in 10 CFR Part 50, for Holtec's proposed pumps and valves (i.e., in accordance with NRC guidance (SRP Sections 3.9.6 and 5.2.2)); or provide equivalent methodologies and/or justifications that would meet the intent of 10 CFR Part 50, Appendix A.

HOLTEC'S RESPONSE
03.09.06-1

The Objectives of Topical Report HI-2201064 Section 2.2 are repeated here:

"The objective of this report is to receive:

1. NRC approval that a postulated break in the Combined Vessel is not required as a design basis accident, thus eliminating a large break LOCA for the SMR-160.

2. NRC approval of the SMR-160 LOCA acceptance criteria."

Descriptions of the passive safety systems and features of the SMR-160 were provided in the Topical Report to give the Staff a basic understanding of how the LOCA events postulated for the SMR-160 design are mitigated. Holtec is not requesting approval of the design of the safety systems in this Topical Report. In a future licensing application these systems will be described in greater detail and all the structures, systems, and components will be classified based on the safety function they perform. In accordance with the classification, the applicable Codes and Standards, including those listed in the Staff's question will be applied as required.