

**SECTION A. Project Title: Phase 2 NuScale SMR FOAK Nuclear Demonstration Readiness Project – NuScale Power, LLC****SECTION B. Project Description**

NuScale Power LLC, proposes Phase 2 of the Demonstration Readiness Project to advance the development and deployment of a small modular reactor (SMR). The proposed activities are required to ensure both design completion and supply chain readiness. Specific objectives of Phase 2 include: 1) supporting NRC review of the NuScale design certification application, 2) improve plant cost confidence and cost competitiveness through design and supply chain advancement, incorporation of constructability best practices and margin recovery to increase plant power output, and 3) accelerate design maturity, technology development, and operation program readiness. This work will involve prototyping and testing for first-of-a-kind instrumentation and control systems and sensors including level sensors and the module protection system converter. Steam generator flow testing, additional equipment testing, the development of test forgings for the emergency core cooling system valves, and other design development to support the procurement of long-lead materials will be performed.

**SECTION C. Environmental Aspects / Potential Sources of Impact**

NuScale will contract for system and component testing services to be conducted in the contractor's existing industrial and laboratory facilities. These services include the fabrication and assembly of test apparatus used for steam generator flow induced vibration test, instrumentation and sensor development, valve prototyping, detailed design and testing of the safety-related instrumentation and control systems, and thermal hydraulic performance testing. The fabrication of apparatus and conduct of testing requires small amounts of chemical use, and generates shop level quantities of hazardous and industrial waste, which will be disposed of in accordance with existing supplier programs. The larger flow test programs require the periodic use of bulk water from municipal water systems. The waste water is discharged to municipal sewer systems in accordance with local permits and regulatory requirements.

NuScale will contract for system and component prototypical development and fabrication. These systems include electronic board and chassis assemblies of control system components, steam generator tube bending manufacturing and assembly technique development, and forging/fabrication of valve bodies and internals. These activities generate shop level quantities of hazardous and industrial waste, which are handled appropriately by existing supplier programs.

**SECTION D. Determine the Level of Environmental Review (or Documentation) and Reference(s):** Identify the applicable categorical exclusion from 10 CFR 1021, Appendix B, give the appropriate justification, and the approval date.

Note: For Categorical Exclusions (CXs) the proposed action must not: 1) threaten a violation of applicable statutory, regulatory, or permit requirements for environmental, safety, and health, including requirements of DOE orders; 2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities; 3) disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that pre-exist in the environment such that there would be uncontrolled or unpermitted releases; 4) adversely affect environmentally sensitive resources. In addition, no extraordinary circumstances related to the proposal exist which would affect the significance of the action, and the action is not "connected" nor "related" (40 CFR 1508.25(a)(1) and (2), respectively) to other actions with potentially or cumulatively significant impacts.

References: B3.6 Siting, construction, modification, operation, and decommissioning of facilities for small-scale research and development projects; conventional laboratory operations (such as preparation of chemical standards and sample analysis); and small-scale pilot projects (generally less than 2 years) frequently conducted to verify a concept before demonstration actions, provided that construction or modification would be within or contiguous to a previously disturbed or developed area (where active utilities and currently used roads are readily accessible). Not included in this category are demonstration actions, meaning actions that are undertaken at a scale to show whether a technology would be viable on a larger scale and suitable for commercial development.

Justification: The activity consists of research activities aimed at developing and evaluating components for a first-of-a-kind small modular reactor.

Is the project funded by the American Recovery and Reinvestment Act of 2009 (Recovery Act)  Yes  No

Approved by Jason Sturm, DOE-ID NEPA Compliance Officer on 09/12/2018