

DOE-ID NEPA CX DETERMINATION

SECTION A. Project Title: High Temperature Melt Solution Calorimeter: The Thermodynamic Characterization of Oxides n Nuclear Energy – Clemson University

SECTION B. Project Description

Clemson University proposes to purchase a High Temperature Melt Calorimeter that will support ongoing work to advance the fundamental understanding of high-temperature ceramic materials used in nuclear energy applications through the use of melt solution calorimetry resulting in uniquely determined experimental data required for addressing the nation's clean energy initiatives.

SECTION C. Environmental Aspects / Potential Sources of Impact

Chemical Use/Storage / Chemical Waste Disposal – Chemicals including metal oxide compounds will be dissolved into a molten salt resulting in heat release measured by the calorimeter instrument. This work aims to utilize surrogates; no radioactive samples are planned. The disposal of waste from any processing a characterization will be handled within Clemson's existing policies and procedures.

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 purchasing equipment and performing advanced characterization of ceramics for research and educational purposes.

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

Approved by Jack Depperschmidt, DOE-ID NEPA Compliance Officer on 04/10/2015