DOE-ID NEPA CX DETERMINATION

CX Posting No.: DOE-ID-11-006

SECTION A. Project Title: Development of New Analytical Capabilities for the Measurement of Fundamental Thermodynamic Parameters Supporting Advanced Fuel Cycle Chemistry – Clemson University

SECTION B. Project Description

Clemson University will purchase an isothermal titration calorimeter. The calorimeter will primarily be utilized in the determination of aqueous stability constants of actinide-ligand systems to support advanced actinide separations processes and in the determination of enthalpy of actinide interactions at solid-water interfaces. These properties will help to inform nuclear fuel processing activities, separations chemistry, and evaluation of actinide bearing materials during geologic disposition. The primary benefit of this project will be an enhancement of the educational experience of students in the Nuclear Environmental Engineering and Science program at Clemson University.

SECTION C. Environmental Aspects / Potential Sources of Impact

Radioactive Material Use /Radioactive Waste Generation – Clemson University is licensed by the South Carolina Department of Health and Environmental Control to conduct research with a range of fission/activiation products. Using this license, Clemson has the ability to handle and dispose of all radioactive material and waste generated as part of this work.

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 the purchase of an isothermal titration calorimeter and actinide research.

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 11/28/2011