

DOE-ID NEPA CX DETERMINATION

SECTION A. Project Title: Development of New Analytical Capabilities for the Characterization and Measurement of Solid Actinide-Containing Materials Supporting Fuel Cycle Research and Development at Clemson University

SECTION B. Project Description

Clemson University will purchase a powder X-ray diffractometer (XRD) to add capabilities to the Nuclear Environmental and Science program. The XRD will primarily be used for research focusing on 1) the determination of corrosion mechanisms of nuclear materials including nuclear fuels and advanced waste forms to support evaluation of nuclear waste repository performance and 2) the determination of alternative radionuclide detection materials to support low level radionuclide detection for enhancing safeguards near nuclear facilities.

SECTION C. Environmental Aspects / Potential Sources of Impact

Water/Well Use / Discharge of Wastewater – Water is required for coolant for this instrument and may result in the discharge of wastewater.

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

Chemical Use/Storage / Chemical Waste Disposal – Chemicals will be used and stored for sample preparation for use with this instrument.

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 equipment for research and teaching 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 10/21/2013