

DOE-ID NEPA CX DETERMINATION

SECTION A. Project Title: Experimental Determination and Mechanistic Modeling of Used Fuel Drying by Vacuum and Gas Circulation for Dry Cask Storage – University of South Carolina

SECTION B. Project Description

The University of South Carolina will construct a mock nuclear used fuel assembly using depleted uranium. The investigation will address questions surrounding the amount, form, and location of water remaining in dry casks. The project will construct a vacuum drying system, and use detailed vacuum drying procedures during the experiment. An experimental effort involving a full length mock used fuel assembly with multiple heater rods will be employed in these experiments.

SECTION C. Environmental Aspects / Potential Sources of Impact

Use of the depleted uranium is covered by the university's radioactive materials license #405 issued by the State of South Carolina which is a NRC Agreement State. The action will not create additional environmental impacts above those already occurring at the university.

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 mocking up a fuel assembly to determine the amount, form, and location of water remaining in dry casks and how well a vacuum drying system works.

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 08/18/2014