DOE-ID NEPA CX DETERMINATION

CX Posting No.: DOE-ID-13-044

SECTION A. Project Title: Off-gas Treatment: Evaluation of Nano-structured Sorbents for Selective Removal of Contaminants – University of Idaho

SECTION B. Project Description

The University of Idaho proposes to evaluate nanostructured sorbent materials for their effectiveness in removing and immobilizing contaminants for the off-gas treatment from the used nuclear fuel recycling operations.
Specific objectives of the project are:
1. To synthesize and characterize various nanosorbents for the removal of radioactive contaminants from the off-gas
2. To determine the adsorption isotherms for contaminants of interest (I, Kr) on selected sorbents
3. To investigate the immobilization of the contaminants in a durable from
4. To develop a process model that can be used for the design of the capture and immobilization system for the radionuclides in the off-gas.

SECTION C. Environmental Aspects / Potential Sources of Impact

Chemical Use/Storage / Chemical Waste Disposal – The project involves formulation of nano-structured sorbents for treatment and immobilization of gaseous species. Carbon and zeolite substrates will be used for formulating the substrates. Laboratory chemical reagents will be used for synthesis generating small quantities (1-2 kg/yr) of chemical waste. The waste will be handled according to the policies and procedures of the University of Idaho, administered through the Environmental Health and Safety unit of the Public Safety and Security Department of 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 evaluating removal of contaminants with sorbents for research 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 11/13/2013