

DOE-ID NEPA CX DETERMINATION

SECTION A. Project Title: Optical Fiber A Pebble-Bed Breed and Burn Reactor Temperatures – University of California Berkeley

SECTION B. Project Description

The University of California, Berkeley proposes to assess the feasibility of designing a sodium-cooled breed-and-burn (B&B) fast reactor that will be able to establish and maintain a B&B mode of operation when fueled with depleted uranium. The proposed novel approach uses pebble-type fuel instead of fuel rods and fuel assemblies. Most of the work of this feasibility assessment will be based on computer simulation. However, limited experiments using facilities at the university for studying pebble dynamics and thermal-hydraulics characteristics in pebble-bed cores will be performed.

SECTION C. Environmental Aspects / Potential Sources of Impact

The research would involve studying fundamental characteristics of pebble bed cores made of graphite pebbles. The action would 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 evaluating pebble bed characteristics and computer modeling for research purposes.

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

Approved by Jason Sturm, DOE-ID Deputy NEPA Compliance Officer on 11/27/2013