

DOE-ID NEPA CX DETERMINATION

SECTION A. Project Title: Methods to Predict Thermal Radiation and to Design Scaled Separate and Integral Effects Testing for Molten Salt Reactors – University of California, Berkeley

SECTION B. Project Description

The University of California, Berkeley, in collaboration with the Massachusetts Institute of Technology, proposes to perform experiments with molten salts, to measure molten salt IR absorption properties, quantify radiation heat transfer (RHT) for key molten salt cooled (FHR) and fueled (MSR) reactor geometries and operating conditions, and develop and test a rigorous scaling methodology for the design of separate effect test (SET) and integral effect test (IET) experiments.

SECTION C. Environmental Aspects / Potential Sources of Impact

Chemical Use/Storage / Chemical Waste Disposal – The proposed experiments use Dowtherm A as a simulant fluid for molten salts. Dowtherm A is a heat transfer oil used routinely in industrial processes, such as solar thermal power systems, that is hazardous. The Thermal Hydraulics Laboratory has worked with the UCB Office of Environmental Health and Safety and has established procedures for use of Dowtherm, including procedures to control and clean up spills as well as to dispose and/or recycle Dowtherm wastes.

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 university-scale research aimed at investigating thermal radiation for molten salt reactors.

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

Approved by Jason Sturm, DOE-ID NEPA Compliance Officer on 07/11/2017