

DOE-ID NEPA CX DETERMINATION

SECTION A. Project Title: Coiled Tube Gas Heaters for Nuclear Gas-Brayton Power – University of California, Berkeley

SECTION B. Project Description

The University of California, Berkeley proposes to develop an alternate design (coiled tube gas heaters) for heat exchangers that can be used in Brayton-cycle power conversion heat transfer in advanced sodium and fluoride salt cooled reactors. The project will focus on heat exchangers for heating supercritical carbon dioxide (SCO₂) using sodium.

SECTION C. Environmental Aspects / Potential Sources of Impact

Chemical Use/Storage / Chemical Waste Disposal – Chemicals will be used for specimen cleaning (acetone, ethanol, isopropanol) as well as for metallography investigations (HCl, HNO₃, H₂SO₄, Acetic acid, NaOH, Copper sulfide). The chemicals used are part of standard metallurgical investigation procedure and the laboratory has experience in handling and using them. A chemical waste stream exists for the waste generated using these chemicals. All chemicals will be disposed of in accordance with University, local, state, and federal guidelines. Quantities used will be small and limited to minimal amount required for sample preparation.

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 heat exchangers.

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 09/09/2014