

DOE-ID NEPA CX DETERMINATION

SECTION A. Project Title: Electrically-Assisted Tubing Processes for Enhancing Manufacturability of Oxide Dispersion Strengthened Structural Materials for Nuclear Reactor Applications – Northwestern University

SECTION B. Project Description

Northwestern University, in collaboration with Los Alamos National Laboratory, proposes to enhance the formability of nanostructured ferritic alloys (NFAs) such that high-strength thin-walled claddings can be successfully and economically manufactured for use in future nuclear reactors. This will be accomplished by understanding the effects of continuous and pulsed electric currents on the deformation behavior of Fe-14Cr based NFA steels. Mechanical and microstructural characterization under electrically-assisted forming will be conducted and simulated. The findings will be further applied to establish innovative fabrication processes, i.e., electrically-assisted tube forming processes.

SECTION C. Environmental Aspects / Potential Sources of Impact

Northwestern University has procedures in place to handle any waste that will be generated through this project. The action would not create additional environmental impacts above those already permitted 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 university-scale research aimed at investigating electrically-assisted forming of nanostructured ferritic alloys.

Approved by Jack Depperschmidt, DOE-ID NEPA Compliance Officer on 09/24/2015