

DOE-ID NEPA CX DETERMINATION

SECTION A. Project Title: Integrated Computational and Experimental Study of Radiation Damage Effects in Grade 92 Steel and Alloy 709 – University of Tennessee

SECTION B. Project Description

The University of Tennessee proposes to study the relationship between ion irradiation and neutron irradiation in regards to equivalence in radiation damage in two materials and how ion irradiation data can be used to guide future neutron irradiation experiments, to determine the mechanical property changes in the two materials caused by radiation damage, and to explore ways of manipulating point defect evolution and interaction to control mechanical property change.

SECTION C. Environmental Aspects / Potential Sources of Impact

Radioactive Material Use - The project will use proton and iron irradiation to simulate neutron irradiation. Ion irradiation does not result in radioactive samples. 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 performing ion irradiation of two materials for research purposes.

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

Approved Jack Depperschmidt, DOE-ID NEPA Compliance Officer on 08/11/2014