

# DOE-ID NEPA CX DETERMINATION

**SECTION A. Project Title: Understanding Influence of Thermal History and Glass Chemistry on Kinetics of Phase Separation and Crystallization in Borosilicate Glass-Ceramic Waste Forms for Aqueous Reprocessed High Level Waste – Washington State University**

**SECTION B. Project Description**

Washington State University, in collaboration with Rutgers University, proposes to develop a fundamental understanding of the phase transitions and crystallization mechanisms in complex glass-ceramic high level waste (HLW) forms as a function of thermal history and glass chemistry.

**SECTION C. Environmental Aspects / Potential Sources of Impact**

Chemical Use/Storage / Chemical Waste Disposal / Hazardous Waste Generation – Approximately 5 liters of chemical waste is expected to be generated which may include organic solvents (for example: ethanol) and inorganic aqueous solutions (for example: NaOH, HCL, etc.). Both WSU and Rutgers have dedicated Environmental Health & Safety Departments to ensure the safety of the researchers working in the lab and to manage the waste generated in the research laboratory.

**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 the phase transitions and crystallization mechanisms in complex glass-ceramic HLW forms.

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 06/09/2015