

# DOE-ID NEPA CX DETERMINATION

**SECTION A. Project Title: Repair and Mitigation of Chloride-Induced Pitting and Chloride-Induced Stress Corrosion Cracking in Used Nuclear Fuel Dry Cask Canister Materials – Ohio State University**

**SECTION B. Project Description**

Ohio State University (OSU), in collaboration with Pacific Northwest National Laboratory, Fluor Corporation, DNV GL, Titanium Brazing Inc., and Electric Power Research Institute, proposes to evaluate the suitability of various repair and mitigation processes to combat against chloride-induced pitting (CIP) and chloride induced stress corrosion cracking (CISCC) in 304 stainless steel canisters and the most effective processes will be provided. These processes will be performed on simulated cracked test specimens and evaluated in terms of the thermal history and peak temperature on the simulated canister surface during repair, resulting deformation of the canister, area of coverage that may be achieved using the technique, repair depth limitations, and their ability to mitigate against CIP and CISCC after repair based on accelerated laboratory CISCC screening tests.

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

Chemical Use/Storage and Waste Disposal – Chemical use will involve standard laboratory chemicals, and no HCL-3 designated chemicals. Storage of chemicals will be in accordance with OSU operating procedures. Amounts will be <100 g. Any discharge or disposal of chemicals associated with this work will be handled according to OSU waste management procedures.

**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 activities that evaluate the suitability of repair and mitigation process to combat against CIP and CISCC in used nuclear fuel dry cask canisters.

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 08/03/2018