

DOE-ID NEPA CX DETERMINATION

SECTION A. Project Title: Irradiation of Sensors and Adhesive Couplants for Application in LWR Primary Loop Piping and Component – Electric Power Research Institute

SECTION B. Project Description

The Electric Power Research Institute (EPRI) proposes to perform in-reactor testing and post-irradiation examination (PIE) of piezoelectric acoustic transducers and high temperature adhesive ultrasonic couplants. The results will be used to determine which transducers and adhesive couplants are appropriate for long-term deployment in online monitoring of stress corrosion cracking in light water reactor (LWR) primary coolant loop piping and component welds. Alternative methods to determine if cracks are growing or arrested and characterization of their growth rates using online monitoring will significantly reduce dose to inspection personnel and inspection and maintenance costs.

SECTION C. Environmental Aspects / Potential Sources of Impact

Radioactive Waste Generation – As the experiments will require insertion of test assemblies and a capsule into a research reactor, the materials will become radioactive. It is anticipated that a total of up to 10 pounds will be produced and disposed of by NC State University and the Oak Ridge National Lab LAMDA 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 an investigation into using remote acoustic sensors to monitor component integrity.

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 7/30/2020