DOE-ID NEPA CX DETERMINATION

CX Posting No.: DOE-ID-21-024

SECTION A. Project Title: Infrastructure upgrades to the Texas A&M University Accelerator Laboratory – Texas A&M University

SECTION B. Project Description

Texas A&M University proposes to (1) upgrade one gas ion source to a Toroidal Volume Ion Source (TORVIS) source to increase the proton beam current by one order of magnitude; (2) install a target chamber for proton irradiation of molten salt reactor (MSR)-related corrosion testing; (3) equip a Rutherford backscattering spectrometry for in-situ proton-based analysis of specimen thickness change and composition changes. All the proposed activities will be performed in the Texas A&M Accelerator Laboratory. For this project, both the ion source upgrade and corrosion-irradiation beam line will be installed on the 3 MV accelerator. The Accelerator Laboratory at Texas A&M University is a Nuclear Science User Facilities (NSUF) partner facility which has contributed to many NSUF projects since becoming a partner in September 2018. The project will impact the NSUF community for the materials and corrosion science research. The project will achieve the following major goals: (1) to optimize material properties for both salts and structural components; (2) to develop predictive models to describe material behaviors under various conditions (irradiation, stress, and corrosion); and (3) to develop a fundamental understanding of failure mechanisms.

SECTION C. Environmental Aspects / Potential Sources of Impact

The 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 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: B1.31 Installation or relocation and operation of machinery and equipment (including, but not limited to, laboratory equipment, electronic hardware, manufacturing machinery, maintenance equipment, and health and safety equipment), provided that uses of the installed or relocated items are consistent with the general missions of the receiving structure. Covered actions include modifications to an existing building, within or contiguous to a previously disturbed or developed area, that are necessary for equipment installation and relocation. Such modifications would not appreciably increase the footprint or height of the existing building or have the potential to cause significant changes to the type and magnitude of environmental impacts.

Justification: The activity consists of the purchasing, installation, calibration, and testing of the equipment. to provide the capability of simultaneous proton irradiation and corrosion testing for materials testing, screening, and development for MSR applications.

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

Approved by Jason Anderson, DOE-ID NEPA Compliance Officer, on 07/23/2021.