DOE-ID NEPA CX DETERMINATION

CX Posting No.: DOE-ID-11-008

SECTION A. Project Title: Advanced Nuclear Technology Development Infrastructure – University of Wisconsin

SECTION B. Project Description

The University of Wisconsin has proposed three key components for this project:

1. Acquire and establish an electron backscatter detection system for an existing scanning electron microscope that resides in the Characterization Laboratory for Irradiated Materials and is dedicated to the analysis of radioactive samples.
2. Upgrade the control systems of the particle accelerator in the Wisconsin Ion Beam Laboratory, a key component of the Characterization Laboratory for Irradiated Materials.
3. Upgrade the new Nuclear Energy Technology Laboratory by adding testing, monitoring, and control capability for analysis of fuels and materials for salt-cooled systems.

SECTION C. Environmental Aspects / Potential Sources of Impact

Radioactive Material Use – All sample transfer and analysis is coordinated through the UW Radiation Safety Office through pre-approved protocols under the UW Radioactive Material Site License.

Well Water Use – The ion beam system uses university chilled water systems to cool components.

Chemical Waste Disposal – Routine waste disposal is through the UW Safety Office.

Chemical Use/Storage – The work in the Nuclear Energy Technology Laboratory uses acids and solvents for material science sample preparation. These are routine uses typical of many laboratories within 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: B3.10 Siting, construction, modification, operation, and decommissioning of particle accelerators, including electron beam accelerators, with primary beam energy less than approximately 100 million electron volts (MeV) and average beam power less than approximately 250 kilowatts (kW), and associated beamlines, storage rings, colliders, and detectors, for research and medical purposes (such as proton therapy), and isotope production, within or contiguous to a previously disturbed or developed area (where active utilities and currently used roads are readily accessible), or internal modification of any accelerator facility regardless of energy, that does not increase primary beam energy or current. In cases where the beam energy exceeds 100MeV, the average beam power must be less than 250 kW, so as not to exceed an average current of 2.5 milliamperes (mA); and
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 the analysis of radioactive materials and fuels for research purposes.

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

Approved by Jack Depperschmidt, DOE-ID NEPA Compliance Officer on 11/28/2011