

DOE-ID NEPA CX DETERMINATION

SECTION A. Project Title: Laboratory-based High-Resolution X-ray Absorption Spectroscopy for Nuclear Science and Radiochemistry Research and Education – Washington State University

SECTION B. Project Description

Washington State University (WSU) proposes to acquire a radiological laboratory-based (compact) high-resolution hard X-ray spectrometer to perform both X-ray absorption spectroscopy (XAS) and X-ray emission spectroscopy (XES). XAS measurements allow for accurate quantification of lanthanide/actinide/transition metal chemistry. These comprise much of the materials found in spent nuclear fuels and other nuclear wastes, as well as other fuel forms. Laboratory-based XAS/XES systems provide much of the same characterization potential that has historically only been available from large synchrotron facilities. Experience gained on the smaller system by researchers and students will prepare them to work with the larger, faster systems.

SECTION C. Environmental Aspects / Potential Sources of Impact

Radioactive Material Use – Radioactive materials used include radionuclides such as ^{232}Th , ^{238}U , ^{237}Np , ^{239}Pu , ^{242}Pu
Radioactive Waste Generation – Radioactive waste containing the above radionuclides will be properly handled by Radiation Safety Officers (RSOs) at WSU
Chemical Use/Storage – Chemicals used will be used and stored according to policies at Dodgen Facility
Chemical Waste Disposal – Chemical waste will be disposed according to policies at Dodgen Facility and RSO
Contaminated Soil – Soil will be properly stored and disposed according to policies at Dodgen Facility and RSO

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 purchasing and installing equipment to expand nuclear material chemistry research capability.

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 7/21/2020