Establishing a Nuclear Science and Radiochemistry Instrumentation Hub for Education and Research at Washington State University

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ABSTRACT:

Objectives: Washington State University (WSU) will enhance their nuclear science and radiochemistry research and education infrastructure with the purchase and installation of 1) a liquid scintillation counter with an alpha-beta separation package and 2) a mobile gamma spectrometer capable of measuring low energy gamma-rays (< 100 keV) and can be readily transported to teaching and research labs. The requested radioanalytical instrumentation will be located in a centralized research and teaching hub at the Dodgen Research Facility on the WSU – Pullman campus. The centralized location of the requested instrumentation will strengthen the radiochemistry and materials science programs at WSU and enable more collaborative work among top scientists in the field of radiochemistry, actinide science, and nuclear materials science. The central location of requested instrumentation will support the training of reactor operators and the research of users of the 1 MW TRIGA fueled research reactor located adjacent to the centralized research and teaching instrumentation hub.

Project Description: Washington State University will provide $16 K in cost match to create a centralized research and teaching hub at the Dodgen Research Facility on the Washington State University – Pullman campus. This instrument and teaching hub will accelerate the education and training of next generation researchers on the state-of-the-art instrumentation with in-depth understanding on actinide chemistry, preparing to work in DOE national laboratories. WSU is an ideal location for housing a centralized research and teaching hub within the Pacific Northwest due to its rich program in radiological research spanning multiple colleges within the University, and to its established relationships with radiological programs at the Pacific Northwest National Laboratory and Idaho National Laboratory and the newly established Institute for Energy Futures at Washington State University – Tri-cities. Through these strong existing relationships, we expect the instrument and teaching hub will attract users and allow for instruction throughout the region. Upon completion of the project, WSU will have acquired equipment to conduct nuclear-related R&D work and educate students of multiple research laboratories at WSU, supporting NE's goal of facilitate the transfer of knowledge from an aging nuclear workforce to the next generation of workers.