Establishing a Nuclear Chemistry Core Facility at the University of Wyoming

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ABSTRACT:

TerraPower's selection of Kemmerer, Wyoming as the home for a next-generation "Natrium" nuclear power plant has generated a great deal of excitement across the state for nuclear energy. The development of a thriving nuclear industry within the state faces significant challenges, however, particularly with respect to the development of an appropriately trained workforce and social issues surrounding nuclear development. To address this challenge, the School of Energy Resources (SER) at the University of Wyoming (UW) recently established the Nuclear Energy Research Center (NERC), whose primary mission is to support the development of nationally competitive, nuclear-relevant research programs and nuclear energy-focused curricula at UW.

NERC has been supporting nuclear research at UW by providing seed funding to support the development of new research projects and organizing symposia to engage UW faculty and students with cutting-edge research being carried out at national labs/universities across the country. Nuclear-focused educational opportunities for UW students will be provided through the development of a nuclear energy certificate program which will prepare students to pursue nuclear-focused research at UW and provide them the background need to meaningfully engage with nuclear topics. *While NERC has made admirable progress thus far, the ultimate success of these initiatives will depend critically on advancing the laboratory infrastructure at UW to support nuclear-focused research and teaching activities moving forward.*

The goal of this proposal is to secure the necessary infrastructure to establish a nuclear chemistry core facility which will serve the research and teaching missions of UW. Work towards this goal will include the bidding, purchase, and installation of necessary safety/analytical equipment, the establishment of appropriate protocols for use of the core facility, and the integration of this facility into nuclear energy-focused curricula at UW. The established core facility will be used to enable wet chemistry and analytical work involving radioactive materials to be carried out by researchers and students at UW, facilitating the training of future nuclear scientists and allowing for the development of impactful research programs at UW which could be competitive for DOE-NE funding.

The proposed core facility will enable the first practical nuclear chemistry research and educational programs to be established in the state of Wyoming. As UW is the only 4-year degree granting institution in Wyoming, it is critical that these capabilities are developed to ensure UW students and researchers can meaningfully engage with the state's emerging nuclear industry. The prospect of a next-generation nuclear reactor in Wyoming has brought an urgent need for UW to "catch up" in this respect. The infrastructure secured through this proposal will contribute significantly to these ongoing efforts and directly advance DOE-NE goals in the state by supporting the development of research programs relevant to new fuel cycle technologies and advanced materials for nuclear applications.