

DOE-ID NEPA CX DETERMINATION

SECTION A. Project Title: Ex-situ and in situ Molten Salt Chemical Analysis Capabilities for the Development of Materials in Molten Salt Environments – University of Wisconsin-Madison

SECTION B. Project Description

The University of Wisconsin-Madison proposes to acquire a Laser-Induced Breakdown Spectroscopy (LIBS) system to monitor the chemical species in molten salt systems ex-situ as well as in real time corrosion experiments. The LIBS system will complement several systems that the University either already has or is currently developing: 1) a salt purification system, 2) several static corrosion testing systems, 3) a natural circulation loop, and 4) a high-throughput material testing setup. The LIBS system will replace current methods of evaluating salt chemistry (differential scanning calorimetry and inductively coupled plasma optical emission/mass spectroscopy) which have provided limited characterization information for the salt mixtures used and require samples to be removed from the system for analysis.

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 purchasing and installing equipment to expand molten salt research capabilities.

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