

DOE-ID NEPA CX DETERMINATION

SECTION A. Project Title: Establishing MIT's Experimental Capabilities for LWR Thermal-Hydraulics Investigations – Massachusetts Institute of Technology

SECTION B. Project Description

MIT proposes to establish new experimental capabilities to enable unprecedented investigations of boiling heat transfer in actual LWR operating conditions. To achieve this goal, equipment and upgrades fall into three broad categories:

1. Flow loop capable to accommodate tests at high-pressure and high-temperature conditions;
2. Ultra-high-speed cameras capable to image with a sufficient space and time resolutions flow boiling phenomena at high pressure and high subcooling;
3. Computational capabilities to carry out the post-processing and the analysis of experimental results.

SECTION C. Environmental Aspects / Potential Sources of Impact

Water/Well Use / Discharge of Wastewater – The project foresees flow boiling experiments using de-ionized (DI) water. Each experiment requires approximately 10 liters of water, adding up to a total amount of approximately 3 m3 per year. The water used in the experiments is not contaminated and can be disposed with non-hazardous liquid waste stream.

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 for teaching and research purposes.

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 4/6/2017