

DOE-ID NEPA CX DETERMINATION

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CX Posting No.: DOE-ID-13-042

SECTION A. Project Title: Model Validation Using CFD-Grade Experimental Database for NGNP Reactor Cavity Cooling Systems with Water and Air – University of Michigan

SECTION B. Project Description

The University of Michigan proposes to investigate specific thermal-hydraulic issues, which will ensure that the Reactor Cavity Cooling System (RCCS), a key safety system for the Next Generation Nuclear Plant, is able to successfully accomplish its safety functions under all conditions, and will result in improved computational methodologies for the prediction of the RCCS behavior. The will be accomplished by using advanced innovative instrumentation to build a high-resolution experimental database and to use novel experimental data to assess and further develop the predictive capabilities of both system codes and computational fluid dynamics computer codes.

SECTION C. Environmental Aspects / Potential Sources of Impact

Water/Well Use – Two water tanks of 1.5m³ each will be filled and used to conduct the experimental campaign. The water in the two tanks will be recirculated in the experimental loop. One water tank will contain DI water, and the second water tank will contain standard tap water.

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: B3.6 Siting, construction, modification, operation, and decommissioning of facilities for small-scale research and development projects; conventional laboratory operations (such as preparation of chemical standards and sample analysis); and small-scale pilot projects (generally less than 2 years) frequently conducted to verify a concept before demonstration actions, provided that construction or modification would be within or contiguous to a previously disturbed or developed area (where active utilities and currently used roads are readily accessible). Not included in this category are demonstration actions, meaning actions that are undertaken at a scale to show whether a technology would be viable on a larger scale and suitable for commercial development.

Justification: The activity consists of experimentation and modeling of thermal-hydraulic issues for research purposes.

Is the project funded by the American Recovery and Reinvestment Act of 2009 (Recovery Act) ☐ Yes ☒ No

Approved by Jack Depperschmidt, DOE-ID NEPA Compliance Officer on 11/13/2013