

DOE-ID NEPA CX DETERMINATION

SECTION A. Project Title: Progression of High Resolution SET and IET Benchmarks on PCC and DCC events in HTGRs

SECTION B. Project Description

Oregon State University proposes to develop an experimental database of progressive benchmarks with increasing complexity, to be able to validate system-level codes such as Pronghorn and Computational Fluid Dynamics (CFD) codes in support of High-Temperature Gas-cooled Reactor (HTGR) designs. The proposed workscope will leverage existing experimental facilities at Oregon State University and at the University of Michigan and includes a sequence of benchmark data with increasing system complexity, from separate effect tests to integral-effect tests. This will allow for a step-by-step validation of relevant models of CFD and Pronghorn codes, yielding a clear identification of potential models' deficiencies. The experimental data will be used to validate current models in Pronghorn and CFD codes.

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 permitted 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: 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 university-scale research activities to develop an experimental database of progressive benchmarks to be able to validate system-level codes in support of High-Temperature Gas-cooled Reactor designs.

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 9/15/2020