

DOE-ID NEPA CX DETERMINATION

SECTION A. Project Title: CFD and System Code Benchmark Data for Plenum-to-Plenum Flow Under Natural Mixed and Forced Circulation Conditions

SECTION B. Project Description

The project will conduct computer modeling, as well as experimental initiatives. The experimental initiatives include modifications to the current Utah State University experimental wind tunnel to evaluate flows and buoyancy-driven phenomena present in Very High Temperature Reactors during Loss of flow accident conditions. Once complete, four different experimental convection conditions will be analyzed: (1) forced convection; (2) buoyancy-aided mixed convection; (3) buoyancy-opposed mixed convection; and (4) natural convection. As the final research effort, a parametric evaluation on the impact of the bypass gap size relative to that of the central coolant channel will be carried out.

SECTION C. Environmental Aspects / Potential Sources of Impact

Utah State University has procedures in place to handle any waste that may 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 project consists of university scale research using a modified wind tunnel.

Approved by Jack Depperschmidt, DOE-ID NEPA Compliance Officer on 6/30/2016