DOE-ID NEPA CX DETERMINATION

CX Posting No.: DOE-ID-14-039

SECTION A. Project Title: Fluid Stratification Separate Effects Analysis, Testing, and Benchmarking– Oregon State University

SECTION B. Project Description

Oregon State University will perform research to experimentally characterize, in a scaled separate effects test facility, the role of stratified flow as it contributes to the air-ingress accident related to a high-temperature gas reactor. Thus the study has the following scope:

1. Implement scaling analysis to preserve the dominant phenomena of air ingress and transition to natural circulation.
2. Establish an experimental facility to investigate stratified flow between a binary gas mixture of helium and nitrogen under isothermal and heated conditions during exchange flow and beyond.
3. Establish an experimental database describing stratification flow and front behavior in simple geometries under isothermal and heated conditions.
4. Develop predictive models of stratified flow and front behavior for a binary gas mixture for implementation in applicable computer codes, or evaluate currently utilized codes against experimental data.

SECTION C. Environmental Aspects / Potential Sources of Impact

The action will 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: 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 conducting university laboratory scale research.

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 08/12/2014