DOE-ID NEPA CX DETERMINATION

CX Posting No.: DOE-ID-13-004

SECTION A. Project Title: Modeling and Validation of Sodium Plugging for Heat Exchangers in Sodium-cooled Fast Reactor Systems – Westinghouse Electric Company LLC

SECTION B. Project Description

Westinghouse proposes to perform development and testing of new experimental techniques for detecting the presence of Na_2O, as well as to measure the thickness of the corresponding deposits on channel walls. These tasks will be accomplished using the Sodium Plugging Phenomena Loop (SPPL) available at Argonne National Laboratory.

SECTION C. Environmental Aspects / Potential Sources of Impact

Chemical Use/Storage – The experimental system to be used for this work is filled with a few gallons of sodium. Additional sodium may be stored nearby to refill in the event of a leak.

Chemical Waste Disposal – When the work is completed, the sodium must be disposed. The laboratory has a waste processing facility for handling this action.

Hazardous Waste Generation – Processing the sodium waste produces sodium hydroxide solution, a caustic material.

Air Emissions – In the event of a sodium leak or fire, large quantities of sodium oxide smoke will be produced. The experimental apparatus is in a ventilated enclosure connected to a scrubber system to secure that none of the smoke escapes.

Discharge of Wastewater – The scrubber system and the waste processing facility both produce aqueous sodium hydroxide solutions. These are discharged to the laboratory sanitary sewer system.

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 evaluating sodium deposition for 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 Deputy NEPA Compliance Officer on 7/11/2013