

SECTION A. Project Title: Safeguards in Pyroprocessing: an Integrated Model Development and Measurement Data Analysis – The Ohio State University**SECTION B. Project Description**

The Ohio State University, in collaboration with the University of Idaho, proposes to develop an effective and functional model for safeguarding a pyroprocess facility using integral model development and experimental data analysis. For model validation, electrochemical experiments with depleted uranium and cerium in molten LiCl-KCl and LiCl-KCl-Cd/solid cathode systems will be performed in the radiochemistry laboratory at the Center for Advanced Energy Studies (CAES)

SECTION C. Environmental Aspects / Potential Sources of Impact

Radioactive Material Use – Depleted uranium chloride up to 80 g will be utilized under the radiation safety protocol. This will be operated under the state license with an authorized user for the radioactive materials.

Mixed Waste Generation – The mixed waste will be in a form of ternary or quaternary salt which will be solid in room temperature for storage. The waste will not be more than 100 g, and electrochemical recycling process can be applied.

Chemical Use/Storage – For the ICP-MS analysis, organic solvents will be used and therefore, will be stored in the acid cabinet.

Chemical Waste Disposal – The waste will be collected by CAES/UI/ISU for the chemical waste disposal process.

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 pyroprocess facility model development and model validation 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 11/20/2013