

SECTION A. Project Title: Immobilization of High-Level Waste Salt in Dechlorinated Zeolite Waste Forms – University of Utah**SECTION B. Project Description**

The University of Utah, in collaboration with Idaho National Laboratory, proposes to evaluate the main challenges associated with the disposal of electrorefiner salt: maximization of fission products in a final waste form and the associated processing costs. The proposed research will focus on two main objectives to overcome these process- and economic-related challenges: 1) dechlorination of the electrorefiner salt and 2) synthesis of a sintered waste form. To accomplish the objectives, the research will work to optimize process conditions for dechlorination of salts using H-Y zeolite, validate the dechlorination process using simulated electrorefiner salt, and develop glass binder material and waste for sintering process.

SECTION C. Environmental Aspects / Potential Sources of Impact

Chemical Use/Storage / Chemical Waste Disposal / Hazardous Waste Generation – Reagent-grade chemicals to be used during the study include non-radioactive, non-hazardous chloride salts, used for the dechlorination studies, as well as, oxide/carbonate powders for the development of the glass binder compositions. Some hazardous materials, such as organics or acids, will also be used for cleaning purposes. The Department of Environmental Health and Safety (EHS) at the University of Utah provides guidance on proper lab safety protocols, as well as how to package and label waste material. Materials collected by EHS are either recycled, used by other campus researchers, or disposed of at an EPA approved facility.

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 on the dechlorination process of electrorefiner salts.

Approved by Jack Depperschmidt, DOE-ID NEPA Compliance Officer on 06/29/2016