

SECTION A. Project Title: Overcoming Kinetic Barriers to Actinide Recovery in ALSEP – Colorado School of Mines**SECTION B. Project Description**

The Colorado School of Mines, in collaboration with the Argonne National Laboratory, proposes to test the hypothesis that slow kinetics in the solvent separation process ALSEP and its related separation systems, for the recovery of Am from the fission product lanthanide elements, originate in the poor ability of the aqueous complexants to penetrate and react in the interfacial zone containing the metal-extractant complexes.

SECTION C. Environmental Aspects / Potential Sources of Impact

Radioactive Material Use – The proposed work will use radioactive lanthanides as tracers of lanthanide chemistry at CSM and will also study the chemistry of americium at Argonne National Laboratory. The amounts of radioactivity used will be in the range of 0.1-10 uCi, well within the scope of existing procedures and license at both institutions.

Radioactive Waste Generation/Mixed Waste Generation – The work will generate waste and mixed waste. Solid low-level waste will include standard lab items such as gloves, wipes, pipet tips, and vials at a rate of less than 5 gallons per year. Procedures are in place for radioactive waste in the CSM labs and at Argonne, and it is handled in accordance with all applicable regulations by EH&S Office (CSM) or the Waste Management group (Argonne).

Chemical Use/Storage / Chemical Waste Disposal / Hazardous Waste Generation – Chemical use and the generation of chemical and hazardous waste will occur at both sites (CSM and Argonne) under the oversight of the EH&S office (CSM) or according to approved Work Planning and Control Documents (Argonne). Experiments at Argonne will generate less than 1 gallon per year chemical/hazardous waste. Experiments at CSM will generate less than 6 gallons per year of chemical and hazardous waste. Waste disposal is handled in accordance with all applicable regulations by EH&S (CSM) or Waste Management group (Argonne).

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 kinetics of ALSEP for recovery of Am from lanthanides.

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